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AN EVALUATION OF THE DEVELOPMENT AND USE OF A  
MICROCOMPUTER ASSISTED SYSTEM FOR PLANNING INDIVIDUALISED  
ADULT LITERACY PROGRAMMES IN AN ADULT BASIC EDUCATION UNIT

James Angus Byrne - 1987

ABSTRACT

The thesis describes the development, implementation and evaluation of a computer assisted system for planning individualised adult literacy programmes in an adult basic education (ABE) unit located in an English College of Further Education.

After examining past and current developments of Computer Based Applications in Education, both in general and in Literacy Teaching Applications, conclusions as to the appropriate use of computer-based learning in the proposed context are drawn.

Human and hardware resources available in the ABE unit are detailed and appropriate aims for a proposed system based on the earlier conclusions are set out. A possible system instructional model is discussed via details of the current teaching, monitoring and evaluation activities of the unit. An examination of the current theory, practice and literature relating to literacy and adult literacy teaching enables a conclusion that a student-centred approach, in a real world context, using a common core curriculum, is most suitable.

A detailed common-core curriculum model for teaching adult literacy is then proposed, following which a Warnier-Orr design exercise of a computer-based system known as MALCM, using the model, is described, from initial considerations through to system testing.

The implementation and evaluation of the MALCM system in the setting of the ABE Unit is then described in the form of a case study. The reported and observed experiences of staff involved are analysed and the appropriateness of the case study as a means for evaluation is discussed. The thesis concludes by endorsing the potential for a system such as MALCM but underlines the need for user involvement in any CBL learning management development. It suggests that further development of the MALCM system as currently constituted is non-viable without considerable refinements to take account of developments in the field of hardware and intelligent knowledge-based systems.

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MICROCOMPUTER ASSISTED SYSTEM FOR PLANNING INDIVIDUALISED  
ADULT LITERACY PROGRAMMES IN AN ADULT BASIC EDUCATION UNIT

IN TWO VOLUMES

VOLUME ONE

JAMES ANGUS BYRNE

DEGREE OF MASTER OF EDUCATION

UNIVERSITY OF DURHAM

SCHOOL OF EDUCATION

1987

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14 FEB 1989



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Chapter One - The Developmental Background in the past 25  
years

1.1 Introduction

This chapter, by means of a review of the existing literature, describes the significant trends, findings and outcomes relating to the use of computers in educational contexts over the past 25 years, focused on a period of writing around 1977/1978 at which time the first microcomputers were becoming practically and economically available to sectors of education which would previously not, on grounds of cost, size and support, have been able to consider the acquisition of computing facilities. General usage across the range of curricula is considered, followed by an examination of the use of the computing in the teaching and learning of literacy.

Following this review, and consequent on its findings, specific conclusions are drawn regarding the likely optimum role for computing as a resource in teaching and learning generally and in the teaching and learning of literacy specifically. These conclusions are then used as part of the theoretical basis for the development of the

computing resource aspects of the MALCM system, a description of the development and evaluation of which forms the major part of the study.

Literature dealing with developments undertaken during the period of this research, and thus not referred to in this chapter is dealt with in the concluding section in chapter nine.

It should be noted that the use of the term Computer-Based Learning is to indicate any usage of the computer in education. It therefore subsumes any other, more specific, terminology relating to the field, such as, for example, Computer Assisted Learning or Computer Managed Learning.

### 1.2 Computer - Based Learning in general applications

The use of computers in Education, in differing roles, has been established internationally for some twenty-five years. Since, from the earliest days of their development, computers were in the hands of University research departments, their use in the business of delivery and administration of higher education was an early and obvious application. As early experiments were succeeded by more sophisticated projects, the patterns of usage that emerged permitted attempts at classification. An early and obvious division of modes of use was that between the computer as a deliverer of educational

material to be learned or used by students and teachers, and as a data processing tool by administrators. It became apparent, however, that the first of these categories might be further elaborated

For instance, in surveying the international scene in 1979, Rushby (1981a), identifies three discrete modes of use as follows.

The first, described as Computer-Assisted Learning (CAL), assumes a student receiving material for learning directly from the computer, the material generally being displayed by the machine on a Visual Display Unit (VDU) or printer. CAL assumes no need for further intervention from any other source at the time of use, though the CAL material itself may be part of a range of course material (courseware) which is not all necessarily computer based or assisted. This mode takes advantage of the computer's ability to store and display information at a rate suitable to the student, and also capitalises on its graphics and animation facilities to enhance the presentation of material. Additionally and importantly, the computer is able to vary and select the information displayed according to the responses elicited from a user. When doing so, the computer is said to be 'interacting' with the user.

The second mode identified is that of Computer-Managed Learning, (CML). Unlike CAL, CML does not attempt to directly present material for learning to the user. Rather, the computer is used to record, co-ordinate and direct a student's progress through a given curriculum which has been previously modelled in some form and stored in the computer's memory. In its classic form, a CML system would also mark, by means of an optical character recognition device, multiple choice tests completed by students. The results would be subjected to a pre-programmed algorithm which would indicate a suitable entry or continuation module within a curriculum carefully pre-structured into modules and sub-modules. The advantages thought to be gained from such a system would be the ability to assess, test and direct the learning of large numbers of students, removing many routine burdens from teachers whilst giving them access to report facilities and summaries of individual or group progress within the curriculum.

The third mode of usage of computing identified by Rushby (ibid.) is that identified earlier; that is, as a resource in educational administration within establishments. Such usage is very close to standard data-processing (DP) applications found in commerce and industry. The only real difference between the two is of the content of the data being processed rather than the

means of processing. Since this study is concerned with the development of a specifically educational or pedagogical application, administrative DP applications will be largely disregarded.

Other writers have produced very similar classifications of computer use in education; (for example, see Hooper, 1977, who corresponds closely to Rushby.) Both of these, and others, have been careful however to underline the non-prescriptive nature of their definitions. It is perfectly possible for particular examples of educational computer software to combine more than one approach. For example, Baker (1981), in describing a hypothetical CML system for use on a microcomputer hardware, puts forward the notion that Computer Managed Learning should be viewed as an essential context for Computer Assisted learning. In other words, a student's use of CAL materials should not be undertaken in an ad hoc manner, but should be carefully directed by some form of CML.

It follows from this that an item of computer software which aims directly to present material for learning (CAL) might also have built into it an element which directs the user to different parts of the CAL element based on a gradually elaborated model of the user's previous performances in using the software.

## Chapter One

In attempting to classify educational computer usage, writers such as Rushby and Hooper are dealing with a field of endeavour whose origins can, as was indicated earlier, be traced back to the very early sixties. From that time, up to 1977 or so, when, as will be argued later, the arrival of the microcomputer undermined many of the basic technologically based assumptions in the field, most CBL was implemented on mainframe computers run by specialist units in Higher Education whose main concerns were not with CBL but with mainstream Computer Science teaching and research, and with general scientific and mathematical applications. It followed that the developmental emphasis of CBL was technological rather than educational.

This point can be amplified by reference to an examination of what was, at the time in the U.K., the most significant development in the field, the government-funded National Development Programme in Computer-Assisted Learning (NDPCAL). It should be noted that the great majority of the projects in the programme were undertaken in the higher education sector, the only sector which had the necessary resources available.

## Chapter One

In a significant review of this programme, which terminated in 1977, Hartley (1978) has examined CBL developments in the CAL mode from the point of view of their educational content and style. He concluded:

"...programs themselves are still limited in the general knowledge they hold of the teaching task, the student's knowledge and general teaching strategy." (p. 145)

In a companion review of CML projects in the U.K. at the time, many funded under NDPCAL, McMahon (1978), characterises practitioners of CBL who:

"...tried to encapsulate the teacher inside a computer and in the process turned him into a page-turner,..." (p. 104)

McMahon goes on to refer to an unpublished paper by Jenkins et. al. (1978) which concentrated on the inadequacy of the representation of knowledge in CML systems.

"...They point out that fundamental epistemological issues are raised when CML systems are implemented. Their general conclusion is that, to date, such issues have been brushed aside in the scramble to establish operating



systems. But the problems remain, arising as they do from the failure of CML developers to invest anything more than intuitive judgements in the decisions about forms of representing knowledge." (p. 111)

A similar situation apparently existed in across the Atlantic. Zinn (1978), in a review of CBL developments in the USA, makes a similar point and raises the issue of the relative roles of man and machine in CBL:

"...Some curriculum materials evidence a narrow perspective on student learning and man-machine interaction. Indeed a major disappointment with much of the instructional use of computers to date appears attributable to a failure of most developers of systems and learning materials to assign to the machine the things it does best for the human learner at each moment, and to reserve for the human the things he or she does best." (p. 130)

In another critical review of developments in the United States, Neuhauser (1977) makes much the same point. Finding much of the CBL of the time to be educationally void, he considers the need for relevant exploitation of the computer:

"...Many of the devices and strategies have mimicked teaching to a high degree and have consequently bypassed many of the potentials present in the technology...We should not be surprised that computer terminals are usually poor substitutes for enthusiastic teachers or good literature, so perhaps our naïveté permits our continued astonishment at technology's failure...CBL should be more than automated programmed texts."

(p 191)

Comments such as Neuhauser's are perhaps less than helpful taken out of context. We need to consider carefully what is to be understood by a term like 'teaching': in this case the writer is referring to characteristically human approaches to teaching via dialogue as opposed to direct, linear presentation of facts and material to be learned.

This idea, that computer usage in education should not necessarily attempt to mimic human teaching styles and strategies is echoed by other commentators. Milner and Wildberger (1977) have, with the benefit of a critic's hindsight, amplified the view that usage up to 1977 was misdirected:

"...While new and different ways of using computers in education and training are emerging, the vast majority of uses appear to use instructional methodologies which fail to take advantage of the potential of the computer installation involved." (p 117)

And:

"...In spite of continued rhetoric for justification of computer use in education, sterile, trivial, 'page-turning' CAI and unnecessary Computer managed instruction systems exist on a larger scale than one might suspect. Close observations of such systems will confirm that what really exists is automated, self paced instruction with minimal branching and underutilisation of the computer." (p 122)

The reference to page-turning compares interestingly with that of McMahon earlier. Here are two different sets of authors (or author), working in different countries, nonetheless making notably similar comments on existing practices in CBL. The shortcomings of technology-led, as opposed to education-led, CBL appear to be international.

Critics such as those already quoted are usually ready to indicate the direction in which CBL should be moving in order to make optimal use of the unique qualities of the computer in Education, though the instructions are somewhat vague at times. For example, Milner and Wildberger (ibid.):

"...Truly rich and sophisticated environments...are practical and possible with a computer. Greater consideration should be given to instructional systems as they could be, vice what they are now...Our hope...is that computers reach their fullest potential by serving people. Thus, determining their appropriate uses in education needs immediate and continuing attention." (p 122)

Just what the nature the richness or sophistication of such instructional environments may be is often only hinted at by commentators. What is recognised however, is the idea that in some way, the educational context of any given example of CBL, in relation to the strengths and weaknesses of a computer as a resource have been given insufficient attention. This recognition is re-inforced in a 1978 study of CBL as practised in Continental Europe. In this, Rushby et. al. (1978) make the point that primary pressures and constraints on the development of CBL have been political and technological, with educational considerations a poor third:

"...this article reflects an unavoidable conclusion reached by the authors that, while justification for CBL has been educational, the decisions to experiment, develop and implement have been taken for hard political and financial reasons. These justifications of applying the power of computer technology to the processes of teaching and learning have been in terms, firstly, of quantitative gains, and latterly, of qualitative improvements and benefits in an interactive teaching/learning process. Moreover, the educational innovation has been possible only because of independent technological advances. These advantages have not been sought and have not come about in response to an otherwise unanswerable educational need."  
(p 157)

Plainly therefore, there was a feeling among critics of the period 1977/1978 that two principal shortcomings are identifiable in CBL developments up to that time - firstly that insufficient attention had been paid to educational context and research in the production of CBL software and systems, and, secondly, that insufficient thought had been given to exploiting the true potential of the computer in teaching and learning, as opposed to attempting a mimicry of established human teaching methods. It is certainly difficult, if not impossible, to find a commentator on CBL writing at this time, who claimed any real success for a

specific CBL implementation or for CBL as a generic resource, though, as with the writers already quoted, there was a general air of optimism about the potential of the field.

Then, co-incidentally but significantly, as writers such as those quoted were worrying and debating the future of CBL in its flawed but promising adolescence, the sudden commercial availability of the microcomputer in a usable and practical form overtook the general debate. Within a short space of time, the possibility of using CBL in a much wider range of educational contexts became a reality. A primary school could afford to have computing power available that, only a year or two before, would have been reserved only for the wealthier reaches of higher education. What had previously been expensive, bulky and troublesome to run and support was suddenly cheap, small and, relatively, trouble free to maintain. Importantly also, there were individuals working in the wider context of education outside the higher sector who would show sufficient enthusiasm and fascination with the new micro-technology to seize upon the concept of CBL as a resource for their own activities.

The danger for such enthusiasts lay in their ignoring the lessons learned in the previous development of CBL in the higher sectors of education. Because of the generally

marginal involvement of primary, secondary and even further education in general or CBL computer usage before the advent of the microcomputer, there had been little involvement of these sectors in CBL development work, particularly in the U.K. The general lack of discussion, co-operation and mutual cause between higher education and other sectors gave rise to the danger that the lessons learned by such projects as NDPCAL, and outlined above, would not be taken into consideration by the new generation of micro-based CBL developers. The possibility of educators, equipped with new micro systems, repeating all the failures of the early mainframe experience was very real. In a paper written in 1979, Howe and du Boulay, writing from the standpoint of University based researchers in CBL and Artificial Intelligence, are concerned to highlight this possibility:

"...Computational facilities have been available in schools and colleges for a considerable period, usually through access to a large batch or timesharing system. The accessibility of microprocessors will make the provision of courses in programming, computer science and computer appreciation easier, since it will enable such courses to be based on hands-on experience of using the machine in a school setting. Our concern here is not with those users of the new technology but with microprocessors used to assist learning of other subjects. In this connection, a

variety of educational roles have been developed and, to some extent, evaluated. But existing experience with large machines should alert us to the danger of re-implementing on microprocessors those programs that have been shown to be educationally unsound." (Howe & du Boulay, 1979, p 241)

Howe and du Boulay go on to classify CBL usage, matching the classification quoted earlier from Rushby fairly closely. The one difference is that they identify further sub-categories of CAL, along lines of Drill & Practice, Tutorial and Simulation modes of use. Drill and Practice software is defined as simply forcing a rehearsing or rote display of knowledge and facts already assumed to be learned. Tutorial software is defined any kind which directly attempts to present material for learning to a user/student, with the implicit assumption that the user has not, before using the tutorial software, previously learned that material. Simulation software is defined as any which attempts to teach via a simulation on the computer of events or performances which would, under normal circumstances, happen or be executed elsewhere by other machines or by humans.

While not specifically stating in which of these categories, or in CML, most positive results have been noted in CBL before 1979, Howe and du Boulay go on to



detail specifically the kind of CBL which, they consider, has proved unsuccessful in development on larger machines. They specifically single out drill & practice software, largely on the grounds that it is educationally 'retrograde'. Their argument rests largely on this statement and they make much of the fact that novice developers of CBL, the numbers of whom are likely to be swelled by the advent of cheap micros, tend to be attracted to this particular dimension of computer use, ignoring other equally valid and probably more sophisticated modes of use.

There are several points that should be made in comment upon this argument before drawing any conclusions that can help inform this study. The first is that both Howe and du Boulay were involved closely at one time in the development of the educational use of the 'LOGO' computer language at Edinburgh University. This is significant in as much as proponents of LOGO see it as a 'discovery' learning tool for children, with many cross-curricular applications. Certainly its intended usage is at complete odds with other mainframe languages and with a rote learning, drill and practice approach to teaching. Undoubtedly their involvement with it may well have coloured the writers' attitude to drill and practice CBL applications.

Secondly, as was stated earlier, experience has shown that CBL material can incorporate several different approaches in one package. It is possible to conceive of material which might, to use the terms given, present material to be learned tutorially, allow the user to experience the implications of what has been learned through simulation, and, finally, test the user on any learning by means of drill and practice routines which might well be tedious and inefficient if carried out by other means. It would be wrong therefore to single out drill and practice as the villain of the piece in isolation. In its right place it might have a perfectly valid role within CBL.

Having said that, CBL developments which restricted the resource to purely Drill and Practice modes would, surely be reprehensible and would deserve the strictures handed out by Howe and du Boulay.

On the basis that the anxieties expressed in this 1979 paper do reflect legitimate conclusions about the state of CBL development, as well as equally legitimate concerns as to the possible effect of the coming of the microcomputer, it might be useful at this stage therefore to attempt to summarise and enumerate the issues which have characterised the positive developments within CBL up to

the advent of the microcomputer. These will be used to establish guidelines for the development of the MALCM system which is the focus of this study.

1. In designing and producing CBL software, experience has shown that educational and pedagogical considerations should be paramount, in as much as they are prime reason for the exercise. For example, the specifying of objectives, of content, of pre-requisite knowledge needed by the student, of how a student learns and what he or she retains, of the relationship of the software to the wider, non CBL curriculum and its resources; all of these should bear upon the design and evaluation of CBL materials. The question of whether the design is technologically feasible to execute successfully, though important, should follow upon the educational specification.

2. It is unlikely that CBL material will form the entirety of any curriculum and its resources. To a greater or lesser degree, human initiated teaching, dialogue and learning will take place. At the present even the most sophisticated computer-based systems cannot approach, still less duplicate, the performance of these human activities and it would be pointless to waste resources in trying to make them do so. A CBL system therefore should attempt to

complement and enrich such activity. Additionally, the CBL system should be used to relieve humans in the tedious, repetitious tasks sometimes encountered in education. Record keeping, Drill and Practice routines which may occasionally be necessary, scoring and summarising achievement; all these suggest themselves.

3. It can be inferred from the two previous conclusions that a CBL system of any reasonable scope is more than a simple casual resource to be used in an ad hoc manner. Any non-trivial involvement of such a system will involve an examination, and possible re-design, of the instructional or curricular structure and theory in use, in order to ensure full educational viability (point 1 above) and appropriate deployment of resources (point 2).

4. The more 'knowledge' the CBL system has of the teaching task, the material to be taught and of the student being taught, the more useful it is likely to be. The problem facing the CBL system designer will be in how to represent this knowledge. If it has not previously been represented in a non-computer 'readable' form, then it must be so represented before it can be incorporated into a CBL system.

These basic conclusions relate to the development of CBL in general terms, irrespective of the nature of the content. It will now be necessary to examine in some detail the development of CBL in the specific field of Literacy teaching and learning, to discover what might be learned from earlier endeavours in this field.

### 1.3 CBL in Literacy Applications

The development of CBL systems in certain aspects of Literacy teaching has been common; an overwhelming number deal with the teaching, and the management of teaching, of early reading skills. The vast majority, at least in the English language, have been undertaken in the United States and Canada.

Mason and Blanchard (1979), in a survey undertaken for the International Reading Association, have documented those known up to 1979. They note some 24 College or University based projects, dating back to the early sixties in some cases, all of which, with one exception, are based in North America. They also document some 27 local authority school-based developments, all in the U.S.A or Canada. The existence of further projects is indicated. Nearly all of these projects are mainframe implementations and the scale

of many is vast. Some, like the Elementary Reading Curriculum project for the PLATO IV system (PERC), or the TICCIT reading program, are specific modules of a larger, more general, CBL service. Others, like the Stanford program, are confined specifically to the development of early reading skills.

The survey shows that the majority of programs developed for teaching early reading skills were aimed at children, while those designed for adult use deal with higher level literacy skills, concomitant with high school or college studies. Exceptionally Florida State University initiated a CBL project entitled : "Reading for Illiterate Youths and Adults". This was, however, prematurely terminated by a withdrawal of federal funding. Additionally, Adair (1969a, 1969b) reports on initial researches into the use of CAL in Adult Basic Education (ABE) at the North Carolina State University, but there is no indication of any system development stemming from this.

The primary mode of computer use in most of these systems is direct CAL, though all the large scale developments incorporate some form of instructional management. A more recent development, not reported by Mason and Blanchard, describes a system implemented in Canadian schools which gives equal emphasis to direct teaching and to management. (Brebner et al. 1980)

One significant hardware element felt necessary to many of these systems is the provision of some form of audio output in the teaching process, generally on the grounds that early learning of literacy skills should be reinforced by spoken sounds corresponding to phonemic elements in the written language. Interestingly, even the large scale, strongly funded projects report reliability problems with this aspect of the technology. (Slatton, 1977, p.117/118 , Fletcher 1976 p.15). Even today such a facility is not standard equipment on microcomputer systems. This highlights a currently problematical element for the designer of a CBL system for literacy applications, though it seems likely that an audio/speech output facility in a micro system is a feasible concept for the near future. However, the development of a matching speech input facility is more remote.

In a forward to the Mason and Blanchard survey, Veneszky (1979) points out that, despite the validity of the educational findings in these programmes, the rapid development of technology, and the arrival of the microcomputer in particular, has outdated much of their work:

"...The rate of change in both hardware and courseware is so rapid that before the evaluation data for any one instructional system are digested, a totally new system is ready for tryout. Such, unfortunately, is already the fate of the massive NSF-sponsored evaluations of the TICCIT and PLATO systems, evaluations begun in 1972 but not yet fully reported. Meanwhile, the computer systems which have been involved have changed so dramatically that hardware and courseware findings of these studies will have little more than historical interest." (Venezsky 1979, p. 6)

Despite this final dismissive comment, such findings may have relevance to the current study and it will be necessary to examine these earlier CBL projects in general and one or two in some detail.

Since Venezsky's comments were written, final evaluations are now available for many of the earlier, large scale projects. The reports on the Stanford 1500 Reading Curriculum (Fletcher J.D. 1976) and the PLATO IV PERC project (Slattow 1977) typically show interesting contrasts between initial, theoretical aims and objectives and final achievements in practical contexts. They are therefore now examined in some detail.



Both projects undertook the task of representing knowledge: they both tried to develop concepts or models of the relationships between skills involved in learning to read, as well as specifically detailing those skills. It is interesting to note that subsequent usage of the computer-based system proved a useful means of evaluating these theoretical models. For instance, the PERC design team included a strictly hierarchically structured model of 'needed skills' in reading which became the basis for a CML management paradigm used to direct students through the curriculum. One of the conclusions of the final report was that this proved unsatisfactory as a means of managing instruction:

"...Subsequent experience in the meshing of the hierarchical structure with the specific lessons and the management of the resulting curriculum by an automated system, however, leads us to believe that a hierarchical description of needed skills is not sufficient to manage instruction efficiently." (Slattow, *ibid.* p. 112)

The hierarchical structure, seemingly, did not permit sufficient flexibility in teaching skills on a 'horizontal' basis:

"...Neither the structure nor...(the management system)...allowed for defining critical 'horizontal' relationships in instruction...it is also clear that decision algorithms for sequencing lessons are unique to each skill area: a generalised decision maker is not useful for selection and sequencing of specific lessons." (Slattow, *ibid.* p. 114)

Subsequently, a simpler, teacher-controlled routing system replaced the hierarchical management algorithm (known as CMS):

"...CMS was put aside during the last four months of the PERC project and a new system was substituted. The new system is a simpler router which allows teachers to design a sequence of activities to be delivered to a specified student, group of students or an entire class. The router then delivers lessons to the student in the order which the teacher has designated." (Slattow, *ibid.* p 115)

The PERC experience here illustrates the inability of the existing technology to successfully duplicate the functions of a human teacher, specifically in the area of individual curriculum design. The simpler routing system adopted late on in the project represents a step towards placing theoretical or intellectual control back into the

hands of the human teacher, while still leaving the 'clerical' business of following a teacher's directions to the computer.

The Stanford 1500 system used an organisation of learning based on a 'strands' approach. This had been developed earlier for mathematics teaching and worked on the principal of equally grouping skills in hierarchically related strands. Different types of skills could then be attempted in any desired 'horizontal' sequence of a teachers or student's choosing without departing from the hierarchical structure of the curriculum. This appears to have proved satisfactory:

"...Although the strands approach was originally developed for arithmetic CAI, it is a powerful and relevant technique for beginning reading instruction as well...The approach appears to be of significant, general utility in the design of CAI and deserving of attention from educational researchers." (Fletcher, J.D. *ibid.* p 38)

This organisation appears to have permitted a greater degree of flexibility than a strictly hierarchical design, permitting a student to work on several different levels of skills simultaneously.

Both hardware reports show an awareness of the fact that the nature of the hardware and software systems used imposed limitations upon the educational potential of the teaching system. For instance, in reporting the Stanford projects, Fletcher states:

"...The 1500 system was an impressive technological innovation but, like any instructional medium, it imposed limits on the instructional presentations it could support. There was, for instance, no direct way to check, by computer, a student's ability to produce the sound sequence represented by the displayed orthography, yet this ability was the principal objective of the program...The design of the Stanford CAI Reading curriculum was shaped by the body of assumptions concerning initial reading...and by the nature of the computer systems used. The former is often noted in comments on the Stanford developments, the latter is usually neglected." (Fletcher, *ibid.* p 15)

In discussing problems in the PERC project, Slattow is more specific:

"...The major obstacles to successful development and implementation of sophisticated curricula are perceived as...Unreliability of the audio component of the hardware..." (Slattow, *ibid.* p. 100/101)

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This same report also indicates that development has shown that a CBL system needs to be tailored to the practicalities and existing resources of the educational context in which it will be used, and also echoes the views of Neuhauser (ibid.) and Milner and Wildberger (ibid.), that the computer should only be used where its capabilities are uniquely valuable. Slattow found that further obstacles to successful development of the system were:

"...inappropriateness of the computer-based Curriculum Management System (CMS) to the realities of elementary classroom instruction. Although appearing to be sound in its initial conception...CMS in the final analysis acted against the integration of higher-level phonics and comprehension lessons into the curriculum...In the opinion of most staff members, energy which might have been better spent on focusing on specific problems which showed promise of being uniquely impacted by PLATO, rather than attempting to produce a complete curriculum on line at a time when no guidelines for the use of PLATO with young children existed." (p 101)

Though both of these reports deal with resources which, in terms of the progress of computer technology, are outdated, the conclusions quoted here regarding the

feasibility of CBL systems in literacy applications reflect the more generalised views quoted earlier. In particular, the need to represent knowledge of in the form of the material to be taught and the need to assign appropriate roles to the humans and hardware involved in the system emerge.

In view of the fact that both of these systems were designed for use by children in beginning reading skills, whilst this study is concerned with literacy teaching and learning for adults, it is interesting to refer to a paper by Merrill (1980), which discusses aspects of adult language skills teaching in the TICCIT CBL system.

In Merrill's terms, both the Stanford and the PERC systems are intentionally 'adaptive' - that is, they set out to direct the instruction of individuals within a structure curriculum on the basis of their previous performances within that curriculum. This style of control, reflecting the 'teacher knows best' classroom stance adopted in teaching early reading skills to children leaves no room for the possibility of an adult learner wishing to participate in the control of his own learning. Merrill raises precisely this issue:

"...A recurring dream among CAI enthusiasts has been the dream of a maximally adaptive system which could assess a given student's learning style, aptitudes, past achievements and readiness and then present to the student the content and strategy which is optimally appropriate for him/her to receive at a given moment in time. We felt that, rather than being an advantage to education, such a totally adaptive system might be maladaptive, making students system dependent. Such spoon fed students might find that learning from the natural environment was more difficult, because the real world is not as adaptive to the individual needs of the student. We were afraid that unless students learned to adapt the instruction to their own needs, rather than have the system adapt the instruction, that their dream of adaptive CAI might become a horrible nightmare...

"...A learner control system which requires a student to learn to make appropriate strategy choices is very different from a system which caters to the student's needs and aptitudes. In the learner control setting, a students must learn to recognise his/her own learning needs; in an adaptive system, instructional decisions may be made on the basis of needs which the student may not even know that s/he has. In the opinion of the TICCIT designers, this difference is crucial for the student's future development." (Merrill, *ibid.* p. ?)

The concept of learner control as described by Merrill is a useful one for the present study, since it reflects a crucial element in teaching and learning literacy for adults which may differentiate that process from the similar but different business of teaching early reading and writing skills to young children. While it might be unreasonable to expect primary school children to make such instructional decisions in a reading/writing programme, in which a teacher will almost certainly 'know best', the same is not true of mature adults, for whom an element of learner control may be desirable.

Earlier, four general conclusions were drawn regarding the working of CBL generally and are repeated below for convenience:

1. In designing and producing CBL software, experience has shown that educational and pedagogical considerations should be paramount, in as much as they are prime reason for the exercise. For example, the specifying of objectives, of content, of pre-requisite knowledge needed by the student, of how a student learns and what he or she retains, of the relationship of the software to the wider, non CBL curriculum and its resources; all of these should



bear upon the design and evaluation of CBL materials. The question of whether the design is technologically feasible to execute successfully, though important, should follow upon the educational specification.

2. It is unlikely that CBL material will form the entirety of any curriculum and its resources. To a greater or lesser degree, human initiated teaching, dialogue and learning will take place. At the present even the most sophisticated computer-based systems cannot approach, still less duplicate, the performance of these human activities and it would be pointless to waste resources in trying to make them do so. A CBL system therefore should attempt to complement and enrich such activity. Additionally, the CBL system should be used to relieve humans in the tedious, repetitious tasks sometimes encountered in education. Record keeping, Drill and Practice routines which may occasionally be necessary, scoring and summarising achievement: all these suggest themselves.

3. It can be inferred from the two previous conclusions that a CBL system of any reasonable scope is more than a simple casual resource to be used in an ad hoc manner. Any non-trivial involvement of such a system will involve an examination, and

possible re-design, of the instructional or curricular structure and theory in use, in order to ensure full educational viability (point 1 above) and appropriate deployment of resources (point 2).

4. The more 'knowledge' the CBL system has of the teaching task, the material to be taught and of the student being taught, the more useful it is likely to be. The problem facing the CBL system designer will be in how to represent this knowledge. If it has not previously been represented in a non-computer 'readable' form, then it must be so represented before it can be incorporated into a CBL system.

To these, it is now possible to add another four drawn from the experience of earlier work in literacy applications of CBL:

5. Most systems designers felt it necessary to provide a structured model of related skills in reading or literacy as a basis for the development of the system. Subsequently, practical evaluation showed

that such models need to be relevant to the practicalities of the use of the CBL system in its educational context.

6. Inevitably, the hardware and software limitations of a computer system impose matching limitations on its educational potential. As a simple example, the perceived need for an audio element in the Stanford and PERC systems was hampered by the relatively primitive nature of the equipment then available.

7. A CBL system is most valuable when it uses the computer's potential and capabilities where it is unchallenged by an alternative system (cf. the CMS experience in PERC).

8. In producing a literacy teaching/learning system for adults, some provision for the learner to have control over his own progress through the curriculum, and indeed over what constitutes his curriculum may be desirable, since this reflects for him the relatively non-adaptive nature of his real-world environment when he comes to practice literacy skills and behaviours. For this reason, a completely adaptive system requiring no learner control may be undesirable.

#### 1.4 CBL - Current developments in literacy applications

From 1979 onwards, many of the larger college-based research developments across the Atlantic appeared to have run down, though systems like PLATO IV and TICCIT are commercially marketed, (at high cost), and reading programs are currently available on them. In the U.S.A. and Canada, systems development is now concentrated in the state education sector where CML applications in reading applications are reported (Hallworth and Brebner, 1980). Little use of microcomputer systems is reported, though Hallworth and Brebner (ibid.) foresee a likely role as intelligent terminals in distributed processing systems.

In the U.K. the academic CBL community meets regularly on a two-yearly basis to discuss progress in the field. At the 1981 meeting (CAL'81) at the University of Leeds, while two uses of CBL in Literacy applications were reported, (Boyd 1981, Edmonds & Candy 1981), neither involved microcomputer systems, though their applications in other fields were widely reported, (Fiddy 1981, Oberem, 1981, Kidd & Holmes 1981).

Again, in the U.K. the Adult Literacy and Basic Skills Unit (ALBSU) has undertaken an investigation into the potential of CBL in ABE. A paper presented to the

'Educational Computing Conference' at North London Polytechnic in 1982 by a member of the ALBSU staff outlined that organisation's plans and activities in CBL at that time. (Jones, 1982). These are all tentative in nature and the general theme of the statement is exploratory, though positive in anticipation of the use of CBL in ABE work.

ALBSU subsequently sponsored several research projects in using microcomputer based CBL in ABE and this programme culminated in the publication and advertisement of several software packages by ALBSU. The Spring/Summer 1986 edition of the ALBSU Newsletter, for instance, gives details of three, two of which deal with literacy skills. Of these, one is an open-ended Drill and Practice piece, based on a maze game, which allows a teacher/tutor to insert his/her own questions for testing. The other is intended as a driver for a hardware device known as a Concept Keyboard, essentially a simplified keyboard overlay device which by-passes the normal keyboard on a BBC microcomputer and allows users to define and label the user interface. The expressed intention of this software is to offer:

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"...a flexible language tool that can be used with a range of students, and is designed to offer exercises in word order. The student needs to be able to recognise words and to use them correctly, but does not need to be able to spell them." (ALBSU, 1986a)

These two examples of software are essentially both Drill and Practice in approach, even though they are content free. As such they are small-scale in scope and make no attempt to model curricula or integrate with any CML elements or with other software or non-computer resources.

At several conferences organised by the writer of this study during the period June 1984 to January 1986, and funded jointly by ALBSU and the Northern Advisory Council for Further Education (NCFE), the central topic of consideration was the use of microcomputers in ABE in the Northern Region. No participants, though all were experienced ABE practitioners, reported any significant use of CBL in their teaching.

Certainly no further work has been done in using CBL in the field of Literacy teaching and learning which would add any further fundamental concepts or issues to those outlined earlier.

## Chapter One

This study is concerned with the development and evaluation of a CBL system within an ABE Unit.. Points 2 and 7 among those listed above emphasise the optimisation of resources in CBL in any educational context. Following this lead, the next question to be dealt with in describing the development of the system will regarding the most efficient and appropriate mode of use for a CBL system in the context of the Adult Literacy teaching program described earlier. Two factors appear to suggest guidelines for an answer:

- a) The nature of the resources (human, computer-based and other wise) available to implement such a system, and:
- b) The philosophy, structure and objectives of the instructional system in us.

The following chapter details these two areas as they existed for the purposes of this study.

Chapter Two

The proposed CBL system and its context: existing  
resources

2.1 Introduction

The previous chapter, having outlined certain positive conclusions regarding the design of a CBL system in general terms, and in terms of a specifically adult literacy content, proposed two factors as the basis for arriving at the optimal efficiency and appropriate function for a CBL system to be used in an Adult Literacy context. These were:

- a) The nature of the resources (human, computer-based and other wise) available to implement such a system, and:
- b) The philosophy, structure and objectives of the instructional system in use.

This chapter briefly outlines the resources available for this study and then proposes the philosophy and objectives of the CBL system to be developed together with certain hypotheses regarding its likely value and



performance in use. An outline developmental process is also provided as structural underpinning for subsequent chapters.

### 2.2 Hardware resources

The hardware resources available to this study consisted of one BBC model B microcomputer with 32k of main memory, double 80 track disk backing storage providing 800k, and one dot matrix printer. No audio output or input facilities were available. One Visual Display Unit-(VDU) was available. The equipment was not networked or linked to any other hardware system.

### 2.3 Human Resources

The ABE Unit at New College had, at the time of the study, two professional full-time tutors and no shortage of volunteer tutors with a basic training only. All had access to considerable non-CBL teaching/learning resources. There was excellent access to teachers for all Adult Literacy Students - in many cases one-to-one teaching ratios were permanent features of instruction. Major problems concerning human resources were administrative and qualitative rather than quantitative. Few of the volunteer tutors had much more than a basic six

week training in the field of Adult Literacy teaching, this being provided by the full-time members of the ABE Unit staff. Access for volunteer tutors to trainers and supervisors for advice and guidance was limited. The corollary of this situation was that supervisors had only a limited knowledge of the rate and extent of progress of volunteer tutors and their students. Furthermore, efficient use of teaching/learning materials by volunteer tutors and their students was hampered by the limited supervision, and potentially useful material was misused or underused.

Students working in the ABE Unit on a full-time basis had the advantage of contact with professional tutors, but teacher-student ratios here were typically 1 to 10. Such ratios did not permit students to receive much in the way of guidance in awareness of their own learning development and a consequent possible autonomous use of the Unit's resources.

#### 2.4 The CBL system: Aims and Hypotheses

Rather than attempt to supplant the entire function of existing and abundant human teaching resources, the aim of developing a CBL systems for use in the ABE Unit was to create a backup and enrichment to these resources as follows:

1. To provide support and guidance to volunteer tutors in teaching their students.
2. To provide information to supervisors on the progress of the teaching/learning of the student/tutor pair in one-to-one groupings.
3. To maximise the use of the Unit's resources by student/tutor pairs.
4. To enable students to progressively control their own literacy development when teacher support and guidance in this direction was limited in availability.

In addition, the CBL system should be able, by means of data gathered in respect of the four previous aims, to perform a further, fifth function:

5. To assist in evaluating and recording the organiser's assessment of the work of the Unit.

These five aims indicate a role for the system that does not tally precisely with the simple classification of modes of use quoted earlier from Rushby (1979); it does however correspond somewhat more closely to a more recent observation by McCann (1981):

"...Computer-Based Instruction represents a wedding of computer technology with the behaviour-cognitive correlates of the learning process. Hardware development has grown astronomically over the past two decades while our knowledge of how students learn has proceeded much slower.... Given the existence of adequate instructional resources such as teachers, books and other audio-visual media it may be more realistic to consider the Computer-Based Study Management Model in some yet to be specified form as the ideal role for the computer in mediating instruction and facilitating instructional decisions." (McCann 1981 p.135)

Given these aims it is also possible to hypothesise certain outcomes for the development and evaluation of the proposed study:

1. The design and implementation of such a CBL system on the limited hardware specified earlier, using the BBC BASIC high level language, is perfectly feasible.

2. Such a system can be made 'knowledgeable', in a simple fashion, such that it can give meaningful 'advice' to a tutor or student about:

a: the Adult Literacy Curriculum

b: a student's position within the curriculum.

3. Such a system can 'advise' tutors, supervisors and students on teaching and learning without being prescriptive in any way.

4. Such a CBL system can be used as a 'test bed' to evaluate:

a: the curriculum model built into it

b: the interaction of staff and students with that model

c: the interaction between staff and students and the CBL hardware and software itself, as a means for drawing general, non-subject-specific conclusions about the usefulness of this type of approach to CBL.

## 2.5 The CBL system and the instructional system

A pre-requisite for the design of a CBL system, within the constraint of its general aims as defined by its role as an educational resource, is an explicit understanding of the instructional system it will implement (cf. points 3,4 and 5 from Chapter 1, pp 39-40)

In a paper on research into CML, Van Matre (1978), outlines a developmental process of five stages for a CBL system in tabular form as follows:

<u>Developmental Phase</u>	<u>Research and Development Task Areas</u>
PLAN	DESIGN INSTRUCTIONAL MODEL
ACQUIRE	PREPARE INSTRUCTIONAL SYSTEM SPECIFICATIONS
IMPLEMENT/OPERATE	RESOLVE OPERATIONAL PROBLEMS
EVALUATE	CONDUCT SYSTEM EVALUATION
REFINE	IMPROVE SYSTEM FUNCTIONING AND CAPABILITIES

Table 2.1 (after Van Matre 1978)

This outline represents a convenient way to present the design, implementation and evaluation of the proposed CBL system. The ensuing chapters will therefore follow this pattern. The next deals with the planning stage of development.

## CHAPTER THREE - DESIGNING THE INSTRUCTIONAL MODEL

### 3.1 Introduction

In Chapter One, it was established (point 3, page 25 and page 38) that an explicit understanding of the instructional model to be implemented was a pre-requisite for the design of a CBL system, along with a precise matching of the CBL system with the various other resources available to implement it.

This chapter, which represents an account of the first of the five phases in the Van Mätre developmental outline shown in Table 2.1, sets out the elaboration of the literacy curriculum model used in the CBL system whose development and evaluation is described later. The development of the literacy curriculum model is related both to a detailed analysis of the resources available to the ABE Unit at New College, and to previous research in the field, both general and specifically related to adult literacy teaching.



At the time of writing there was, in fact, no commonly accepted and explicit literacy teaching curriculum model in use in the New College, ABE Unit. The need to produce one as a prior step to the introduction of CBL into the unit reflects an experience also predicted by point number three in Chapter One.

### 3.2 Organisation and Resources of the ABE Unit at New College, Durham

Authors such as Zinn, Neuhauser, Milner and Wildberger (op.cit.) have stressed the need to assign resources in a fashion that best utilised their strengths and played down their weaknesses. A description of those of the ABE Unit at New College, Durham is necessary at this stage in order to throw light on the subsequent design of the Literacy Curriculum Model (LCM). The deployment of resources, the explicit and implicit purposes of the Unit, and the flow of communication within the Unit will be covered.

The ABE Unit came into being in a gradual fashion in 1974. Although it has been, and still is, involved in servicing work for internal college departments and for external bodies such as MSC, its main staples of teaching and resource acquisition and development have been in its

contributions to the County Durham Adult Literacy Scheme and in its own three day per week 'New Beginnings' courses.

### 3.2.1 The County Adult Literacy Scheme

The Unit acts as an area centre for the County Adult Literacy scheme. As well as handling referrals and similar administrative details, it is the responsibility of the Unit leader to organise and provide tutoring, accommodation and teaching/learning resources for the scheme. At the time of this study, Adult Literacy activities took place on four evenings per week, with a small amount of activity also occurring during daytime hours.

Each evening's activities were based around a group of volunteer tutors and students meeting as a group but working usually in one-to-one tutor/student pairings, the one-to-one tutor/student relationship being considered the teaching norm for the scheme. Typically, one evening group would consist of between 5 to 10 tutor/student pairings. Such pairings were considered to be permanent but, naturally, there would be times when one or another of the pair would not be able to attend the regular weekly sessions. One of the reasons for organising tutor/student pairs into groups was to facilitate cover for missing

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tutors on such occasions. It would not, therefore, be uncommon for one tutor to have two, or occasionally, more students for the course of the evening. Evening sessions were two hours in duration.

Volunteer tutors were recruited from an enormous variety of individuals who had expressed interest in the scheme. No recruitment criteria were applied other than those of being genuinely interested and being literate. Tutors could be found representing a wide variety of class, occupational and educational backgrounds. No assumption was made at recruitment that the tutor possessed any teaching skills or experience.

Each evening group was under the immediate supervision of one part-time paid member of staff of the ABE unit, known as a Group Supervisor, or simply Supervisor. The function of the supervisor was to oversee, advise on and generally ensure the quality of the work of tutor/student pairs and to facilitate access to resources. Supervisors were more experienced and better trained in the field of Adult Literacy work. It was not uncommon for Supervisors to act as tutors on occasions when regular tutors were absent and cover from other tutors was not practicable for whatever reason.

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The work of all groups, including tutors, students and supervisors was overseen and monitored by an Adult Literacy Organiser, a member of the full-time staff of the ABE Unit at the college. As well as this the Organiser would be responsible for dealing with student referrals, acquiring and organising teaching/learning resources, training both tutors and supervisors and recruiting new staff when and where necessary.

Students coming to the Unit under the auspices of the Adult Literacy scheme did so voluntarily. No entry standards or stipulations were made, no entry testing was practised in any formal way, no educational objectives were set which would in any way reflect the existence of a pre-defined course, and no formal recording of students work was undertaken other than those needed for weekly continuity by tutor and student. The implicit, but never openly stated, assumption of all concerned was that students perceived within themselves some need for help with literacy skills and that tutors, supervisors and the Organiser would, in consultation with the student, provide help on a weekly basis as indicated above. The abilities, backgrounds, ages and motivations of students involved in the scheme varied widely and evening groups would reflect this mixed ability characteristic in the range of their tutoring.

Staff training, undertaken by the Organiser, consisted of a 12 hour course for tutors. It was based on no prescribed curriculum model but simply covered such broad areas as phonic skills, spelling strategies and comprehension skills. No attempt was made to encourage tutors to follow any explicit pattern or order in teaching. Tutors were, however, encouraged to base their tuition around the stated needs of the student as expressed in terms of literacy tasks encountered in the real world. It was a common observation of Unit staff, both full and part-time, that the quality and practice of literacy tuition provided by tutors, nearly all of whom had been through the training course, varied widely between, and within, groups.

### 3.2.2 The New Beginnings Course

This is a full-time three day per week course run within the ABE Unit. It offers seventeen and half hours per week to adults and provides teaching in basic Literacy and Numeracy skills. Like the Adult Literacy Scheme, it recruits from interested adults and imposes no entry conditions or formal entry testing. Its aim is provide adults with help in the basic skills of literacy and numeracy with particular reference to social survival and employment seeking problems. It is not necessary for

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adults wishing to enter the course to state specific purposes in these areas however. Each application is taken on its merit.

The course is run on a 'drop-in' basis and students may attend only those sessions out of the six available that they feel they wish to. Teaching is carried out by part-time and full-time unit staff and is conducted on an individualised basis. Each student has a work programme devised by himself and a teacher which is followed and revised on a weekly basis. Although programmes for students may well coincide, no attempt is made to impose group teaching unless circumstances call for it. Because of this individualised approach, student numbers in any one session are kept to a maximum of ten. More than this has proved to be unmanageable for a single teacher if the individual teaching programmes are to be meaningfully arranged and maintained.

Generally, more than half the of the student time on the course was devoted to Literacy teaching/learning, though it should be pointed out that teachers attempted to integrate the literacy and numeracy aspects of each individual programme through real world applications of skills in both areas. All staff teaching on the course were also either at supervisor or organiser level in the Adult Literacy Scheme. Students attending the course

displayed very much the wide variety of background, ability and age as those on the Scheme. Indeed, in many cases, students who originally started on the Evening scheme subsequently also began to attend the New Beginnings course.

Both courses are taught in the same premises within New College and both have access to a considerable collection of conventional teaching resources in the form of books, and other teaching/learning materials. At the time of this study the Unit had recently acquired the microcomputer and peripheral hardware detailed in chapter one. Little CBL software that could be used with students in literacy work was available however, and staff expressed disappointment with that there was. It was generally Drill and Practice -CAL- material and was frequently found to be childish and so inappropriate in its approach from the point of view of both tutors, teachers and students.

### 3.2.3 Communication, monitoring and evaluation within the ABE Unit

In both aspects of the work of the unit outlined above, it is necessary for differing staff to inform colleagues as to the content and progress of individual student work programmes. In the case of the Adult Literacy Scheme, supervisors and the organiser required regular information

from tutors and students as to the nature, progress and, by a process of evaluation based on this, the quality of work done. Such evaluation will guide the organiser and supervisors in selecting future resources, planning training and instituting support programmes for tutors.

Communication between staff is also important in both course to ensure continuity of help and teaching for students in cases of tutor cover or where, as happens in New Beginnings, more than one member of staff is teaching the same student at different times.

At the time of this study communication was not completely successful for two chief reasons:

a) the lack of an agreed or explicit curriculum model in Literacy teaching proved an obstacle. Communication was inefficient because it was not based on a set of common assumptions about what could be taught and learned, what should be taught and learned and what the relationships between such factors might be.

b) the lack of a common method and terminology for recording and evaluating students' progress, if any, in their work.

c) the lack of contact between staff working on different days on a part time basis.



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For this reason, the organiser and the supervisors found it difficult to evaluate and monitor the work of the unit in any meaningful or precise way, and tutors particularly found it difficult to structure teaching programs for their students other than on an ad hoc week to week basis. This in itself detracted from the sense of purpose and progress that students might otherwise have gained from their experience of working in the unit.

This situation further tended to obscure access to teaching and learning resources available in as much as matching the correct resource to the appropriate teaching situation was made difficult by lack of common ground between provider (organiser and supervisor) and user (tutor and student).

### 3.3 The Curriculum Model

#### 3.3.1 Concept and Purposes

The general conception of a curriculum model for use in the proposed CBL system is of a structured and detailed description of the constituent skills and behaviours used by adult human beings in the process of responding to the literacy demands made on them by their daily life in society. It would provide for tutors and students what Weber (1977) refers to as :

'....the best foundation for instruction....a finely drawn picture of the nature of reading and of the possible routes to becoming literate.' (Weber 1977, p.10)

Using it, tutor and student should be able to design individual curricula in literacy by selecting from it those areas which both feel correspond to the needs and deficiencies in literacy experienced by the student. It should supply tutor and student with clear indications of teaching/learning activities which will enable the student to function more successfully in the face of real-life literacy tasks with which he/she currently has experienced problems.

## Chapter Three

Such a general and explicit curriculum model would serve as a common ground for communication and evaluation among ABE Unit staff. As such it would, as indicated in hypothesis number five in Chapter One, be subject to a test of its validity, utility and acceptability by being the basis of the proposed CBL system.

In sum, it was felt that the curriculum model should exhibit the following qualities. It should be:

**Comprehensive** - by including all the skills and behaviours used by adults when exhibiting the behaviour known as 'literacy'.

**Detailed** - it should be precise and clear as to the nature and usage of the skills and behaviours which it describes.

**Structured** - by showing the relationship between the component skills and behaviours. Such relationships might be functional (reflecting daily usage,) or developmental, (reflecting the manner and order in which the component skills and behaviours are acquired) (These three qualities all reflect points 3.4 & 5 from Chapter One, and relate to an attempt to make the proposed system 'knowledgeable' in the sense discussed in Chapter One.)

**Selectable** - by enabling tutors and students to select from it as teaching/learning topics those skills and behaviours which correspond to a student's needs and problems, reflecting point 8 from Chapter One and supporting aim 1 from Chapter Two.

**Functional** - it should describe skills and behaviours that relate to the functional literacy need and problems encountered by students in daily life, reflecting point 8 from Chapter One and aims 1 & 4 from Chapter Two.

**Quantifiable** - it should provide all concerned with a means of assessing the progress of students in their work in the unit and should also provide supervisors and the organiser with a means of comparing the relative progress and abilities of students in their work; supporting aims 2 & 5 from Chapter Two.

**Communicable** - it should provide all staff with a common basis for communication regarding the work of the unit and the application and direction of resources, supporting aim 3 from Chapter Two. It was felt by the author that the curriculum model in question should not, however, be an arbitrary creation, but should take into account existing research in the field of literacy skills and behaviours in general, and in the field of Adult Literacy specifically. These are reviewed in the following section.

### 3.3.2 Existing research

#### 3.3.2.1 General Research

Research into the human behaviour known as literacy, and its component behaviours, is legion and a comprehensive survey is outside the scope of this study which seeks only to relate the proposed curriculum model to the current general understanding and common thinking in the field. Many authors have proposed 'models' of literacy (or, more commonly, reading,) but it would not be possible to use any one 'off the peg' since they are usually proposed for a specific purpose not necessarily concomitant with that of this study. Goodacre's (1979) observation that an individual author's model is largely dependent on his field of interest is worthy of note here.

Thus, researchers working from a psychological standpoint, (an example is Ruddell 1969), have described reading as a communications flow system operating within the conscious and unconscious mind. They are concerned with hypothesising the workings of a particular form of human behaviour in a competently literate adult subject and pay scant regard to affective factors in the process.

Other writers, (eg: Gough, 1972, Venezsky & Calfee, 1970, Laberge & Samuels 1974), concerned to explore the reading process from the standpoint of the human as a processor of information have described complex accounts of data input, storage, flow and interpretation operating within the central nervous system.

Both such types of model are neither selectable, functional nor quantifiable by the definitions given above. Their intention is to develop an understanding of human cognitive functioning as an end in itself and they concern themselves with processes that are, in terms of the purposes of the ABE unit, the least easily modifiable forms of literacy behaviour.

They do however offer a structured approach to the subject in that they describe, however hypothetically, differing systems and subsystems operating together within the domain of complex but explicit relationships. The move towards this structured approach in proposing models of literacy is one which has characterised much recent research and is highlighted by Singer & Ruddell (1976). In this regard the proposed curriculum model of this study is in line with current or recent research.

Other models have been proposed for more specifically pedagogical purposes. For instance the work of Singer and Holmes in the nineteen-sixties, (Holmes & Singer 1961, 1966, Singer 1962, 1964, 1965), led to the elaboration of the Sub-strata Factor models of Reading. These were constructed from statistical analyses of selected, testable variables in the reading performance of varying (U.S.) grades of children. The result of these analyses is a set of hierarchical structures, one for each U.S. school grade level in both 'Power' and 'Speed' of reading. The hierarchical structure is composed of contributory sub-skills which, based on the statistical analyses, are indicated as having a predicted percentage contribution to either power or speed at a particular grade. Each subskill is similarly analysed into further contributory factors, each with its own percentage indicator of contribution. Three such 'sub-strata' levels are shown. The model also indicates factors believed by its authors to be contributory to the overall skill but having no statistically derived indicator. The model is also not strictly as hierarchical as might first appear, in that certain sub-skills appearing as contributory factors at one level do appear as subsuming sub-systems at a higher level.

One of the major hypotheses proposed by Singer and vindicated by his findings, (Singer 1965), is that the sub-strata factor model shows a modal shift in the nature of the subsystems utilised as a reader approaches reading maturity: sub-systems relying on motor-kinaesthetic support give way to auditory based subsystems which, in their turn, are displaced by visual verbal strategies in the mature reader. Singer also found (ibid.) that different systems are mobilised according to the reader's purpose, and that a reader faced with difficult material might well revert to a dependence on subsystems characterising auditory or even kinaesthetic strategies.

Such a model would certainly claim to be comprehensive, detailed, structured and quantifiable, and in these senses it has much to recommend it as a parallel for the proposed curriculum model of this study. Over the span of the school grades which it covers it reveals patterns of development and relationships between subskills and types of sub-skills which, we shall find later, have implications for the model of this study.

However, its content makes no claim to be functional in the sense understood in the previous section of this chapter and it should be noted that it reflects research relating to developing literacy abilities and behaviours



in school children. So while it is for teachers of specified grades of school children a selectable model, it takes no account of the needs of adults to cope with the functional demands of the real world. A tutor in the ABE unit would be faced with unanswerable question of which particular grade structure model for children to select for a particular adult. (Charnley and Jones (1979) have concisely outlined the pointlessness of applying measures and tests intended for children to adults in the literacy teaching context.)

The importance of the functional approach to the literacy curriculum has been stated forcefully by Bormuth (1974). Rather than specifying an overall structured, non-functional model, this author emphasises the possibility of a variety of definitions related to the purposes of literacy which are under consideration. Literacy is, in fact referred to as:

'... the ability to respond competently to real-world reading tasks.' (Bormuth 1974, p.13)

Bormuth goes on to outline seven graded categories of 'literacy behaviours' which, he proposes, are employed by the literate adult to respond to real world reading tasks, depending on the demands of the task in question. He does

underline, in a footnote, the fact that these definitions are intended simply as a guide and do not pretend to be in any way comprehensive or detailed. Nor are they claimed by him to be in any way original. It is interesting to note the close correspondence to the categories of language skills produced by the A.P.U. report on language performance in schools. (Gorman, White, Orchard, Tate, 1981).

Briefly Bormuth's categories are:

**Decoding**

**Literal Comprehension**

**Inference**

**Critical Reading**

**Aesthetic Appreciation**

**Reading Flexibility**

**Study Skills**

The actual behaviours (or combinations of behaviours) employed depend on the demands of the task being met, and although the listed order of the behaviours implies a hierarchy, Bormuth points out that, in fact, a 'reverse' or 'two-way' hierarchy operates, earlier or more basic behaviours sometimes being inadequate to the task in hand and requiring higher order behaviours to provide a satisfactory response to the problem.

Bormuth's approach then, in emphasising a definition of literacy that takes into account not only the abilities of the human involved but the demands of the literacy task being dealt with, provides an approach which usefully answers the requirement of functionality for the curriculum model of this study. It does not, however, provide a comprehensive or detailed description of the skills and behaviours involved. (It should be noted that it is not the intention of Bormuth's paper to provide this)

The body of research and discussion that exists in the area of defining the general literacy curriculum, and which has been briefly sampled here, provides this study with guidelines for the development of a literacy curriculum model answering to the seven requirements listed in the previous section of this chapter. At this

stage it is necessary to examine some of the work that has been produced in relation to the literacy curriculum in the context of Adult Literacy teaching.

### 3.3.2.2 Specific Adult Literacy Research

The body of research and discussion relating specifically to Adult Literacy Teaching and curricula is less voluminous than that of the general field referred to above. Up to the mid nineteen-seventies it has a distinctly international flavour, much of it referring to literacy programmes undertaken in third world countries. With the arrival in the U.K. of the government funded Adult Literacy programme the focus shifted slightly to the problems of teaching adults with literacy difficulties in the home context.

A strongly practical approach characterises much of this writing. The emphasis is on providing functional skills directly related to adults experiences of the world and on developing a curriculum which is based on the needs and purposes of the student. Gorman (1977b) suggests three specific categories of needs for adult literacy students in this respect: Reported, Expressed and Observed needs, where these are to be used as a basis for individual (or

small group) curriculum development. Additionally, he also makes the case for the development of a 'common-core' curriculum:

"....it does not seem wholly unrealistic to envisage courses of instruction for different groups of learners embodying a common core of content leading up to a level beyond which specialisation with regard to specific needs and interests would be feasible. The definition of the common core - the inventory of reading skills that might be considered a pre-requisite for further stages would be problematic.....But enough is known for a taxonomy of skills and learning operations to be devised and used as a basis for courses which would.....have both 'need content' and subject content." (Gorman, *ibid.* p.10)

This suggested approach answers to the needs for selectability and functionality required in the previous section for a curriculum model for the New College ABE Unit. This writer however makes no attempt to define a comprehensive or detailed curriculum model.

In the same paper, Gorman also essays a simple classification of the domains in which most adults are most likely to encounter real-world reading tasks, specifically:

Domestic Affairs

National Affairs

Neighbourhood Affairs

Travel

Recreation

Subsistence

Written information/Mass Media

Gorman's ideas are taken up very closely by Kedney writing two years later in 1978. Like Gorman, he emphasises the desirability of student-centred teaching in adult literacy schemes and, using Gorman's three categories of 'needs', listed above, he analyses student's reading preferences as revealed in a U.S. and a British survey. In the latter, which correlated closely with its U.S. counterpart the following areas of interest were expressed in the given order:

1. Sociology, History, Civics

2. Family, Self-improvement, Jobs and Health

3. Science

4. Sports, Travel, Adventure

5. Children, Animals, Humour

6. Religion

Although these categories are too vague and non-homogeneous to be practically useful in curriculum design, they do reflect to a certain degree the literacy task domain suggestions of Gorman.

In a similar vein, MacFarlane, writing in 1976, stresses the student centred approach to Adult Literacy curriculum development:

"....The starting point of the learning process in literacy should be the personal needs, interest, language and background knowledge of each student. 'No objectives without the learner' might be a summary slogan."

He concludes by emphasising: "....the importance of purpose/skill integration concepts and....the interactionist model of literacy skills posed by Bormuth (1973)." (MacFarlane 1976, p.115)

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The Bormuth reference has already been investigated above.

In the U.S.A. there has been a steady output of investigation into the nature and approach to Adult Literacy teaching over that last two to three decades. The emphasis there, while student-centred, is also highly pragmatic in the sense that much adult literacy work is undertaken in a job or training specific context, and the needs of the organisation involved, with regard to its employment of adults with literacy difficulties, are high in the list of factors determining the curriculum. The work of Sticht (1973,1978,1979) exemplifies this approach.

Kasworm (1980) has written about 'Competency Based' approaches to the Adult Literacy Curriculum, where instruction is geared towards ensuring certain competencies in students that will enable them to cope with specified tasks.

Finally, in one of the few major studies of the British Adult Literacy programme of the mid seventies, Charnley and Jones (1979), concentrating on the assessment of adult literacy work, express forcefully the idea that the only valid assessment that can be carried out must be



based on both the tutors and the student's perceptions of concrete progress in relation to real-world reading tasks in which the student has succeeded.

### 3.4 Conclusion

The consensus of work into curriculum development in adult literacy work therefore, indicates a positively student-centred approach, concentrating firmly on the real world needs and problems of the student when faced with real world literacy tasks. The idea of a common core curriculum from which a suitable individual curriculum can be designed, based on the needs and problems of the student, is also indicated. In sum, existing writing, opinion and research in the field is in line with the type of curriculum model proposed earlier in this chapter and characterised by the seven factors quoted earlier.

Unfortunately no current or recent writer has writer attempted a specific common core literacy curriculum design along these lines. To do so is the next task of this study.

## PART TWO: SYSTEM DESIGN

Chapter Four - The Design of the Curriculum Model

Chapter Five - Designing the CBL System

CHAPTER FOUR - THE DESIGN OF THE CURRICULUM MODEL

4.1 Introduction

As a preparation to implementing a CBL system it has been found necessary to set about elaborating a precise description, or model, of the curriculum upon which the CBL system will be based. The previous chapter examined both the context in which the system and its model will be used, (the New College ABE Unit), and recent research and discussion as to the likely nature of a curriculum model for use in an Adult Literacy context. As a result, certain prerequisites for the design of the model were established:

a) it should have a structure which reflected the relationship between the various skills and behaviours comprising 'literacy' as they are used in the dealing with real-life literacy tasks.

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b) it should have a comprehensive 'common core' which would provide a detailed description of the skills and behaviours used by adults when practising the behaviour known as 'literacy' to cope with everyday real-life literacy tasks.

c) it should allow for the design of individual curricula for individual students by selecting from it those areas and topics which corresponded to the student's literacy needs in real life as perceived by student and tutor.

d) it should provide tutors, students, supervisors and organiser with a quantifiable means of assessment of individual student's and group abilities and progress within the context of itself.

e) it should provide tutors, supervisors and organiser with a common body of knowledge and thinking which should form the basis of communication regarding work in the ABE unit.

This chapter details an attempt to articulate a curriculum 'model' to be implemented in the CBL system. The uses of the word 'model' in this instance does not imply a complete, universal and precise theoretical image of all

behaviours and processes involved in being literate; it is simply an attempt to produce a working representation of the human behaviour known as 'literacy' that can be used as the basis for determining the Adult Literacy Curriculum. The structure of the model is described, followed by the detailed content. Finally the approach to student assessment is outlined.

### 4.2 The Curriculum Model - Structure

The structure of the proposed model is based upon the central need for functionality - that is, to relate adult literacy teaching to the real-life literacy needs and experiences of students as encapsulated in the real-life literacy tasks which they encounter. In the model, the terms, literacy behaviour, literacy skill and literacy task denote specific concepts, as indicated below.

A real-life literacy task is defined as consisting not only of the actual print to be decoded and comprehended, (in the case of reading), or the words (and the ideas which they express) to be written, but the responses that the reader/writer needs to make to cope with the situation successfully. These responses will be partly dictated by the inherent nature of the task and partly by the circumstances of the person involved in it. The responses

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inherent in the task will be referred to as 'expected responses'. Such tasks are taken to fall into two differing categories, although it is acknowledged that these are not mutually exclusive.

1 - Those which are commonly experienced on a regular basis by most of the adult population and which are not usually sought out on a voluntary basis by adults but are 'imposed' on them or confront them willy-nilly. These are termed **common/imposed** literacy tasks.

2 - Those which are actually sought out by individual adults, voluntarily, and which, by definition, reflect, much more than the first category, their own personal interests, circumstances and wishes. Tasks in this category will tend to have a much less wider target 'population' than those in the first. They are termed **voluntary/personal** literacy tasks.

Having made this division of literacy tasks into these two categories, the model goes further and attempts to sub-divide each category into appropriate **social contexts**.

With common/imposed tasks, this is fairly straightforward. Twelve subdivisions or social contexts in which common/imposed literacy tasks are likely to confront

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adults are given, as set out below. These expand on the rather tentative categories proposed by Gorman (1976) and referred to in the previous chapter.

1 - Personal/Individual Relationships

2 - Group Relationships

3 - Domestic/Home Matters

4 - Education/Training

5 - Health

6 - Job/Functional Activities

7 - Consumer Matters

8 - Travel

9 - Getting Employment/Being Unemployed

10 - Civic/Political

11 - Entertainments/Media

12 - The Law

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With voluntary/personal literacy tasks however, such classification is impossible to carry out in general terms. The model therefore requires tutors and students to build up a list of social/personal contexts as a gradual process following the tutor's increasing familiarity with the personal needs, interests and circumstances of his/her student. Determination of these is entirely at the discretion of the tutor and student.

When added together, the common/imposed social contexts and the voluntary/personal contexts give an, at least, partial picture of the areas in which the student is likely to encounter literacy tasks and the problems they may engender for him. A tutor already has a partial picture of the kind of curriculum he might follow in selecting material and subject matter for the student, and for planning of future work.

As we have seen however, different literacy tasks, whatever their social context, have inherent in them 'expected responses': that is, any given literacy task expects the adult involved in it to react in a certain way. A door plate reading 'PUSH' expects an adult to understand the meaning of the single word and subsequently perform a physical action to open the door. The part of



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the form reading 'SIGN HERE' expects the adult to read and understand the two words and then write down his name in 'signature' form.

At a more complex level, a text like this thesis expects a reader to read and understand words and fairly sophisticated concepts, to relate these concepts to others previously understood and to subsequently perform fairly sophisticated functions of assessment and evaluation in a manner that reflects an understanding of those concepts.

The model, therefore, further classifies literacy tasks by the nature of the expected response implicit in them. Six levels of expected response are given:

1 - Understand Simple Instruction - the ability to understand and correctly carry out a single instruction.

2 - Understand Facts and Concepts - the ability to read text and understand more than one fact or, more complex, concept which it intends to convey.

3 - Select and Discriminate Facts and Concepts - the ability to select from the range of facts and concepts presented by a text those which have relevance to the

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reader's needs and current situation and those which do not. In addition, the ability to apply judgement and experience in interpreting or accepting the facts and concepts presented.

4 - Assemble Facts and Concepts - the ability to marshall relevant facts and concepts from experience to form a coherent response to requests for information or opinion, possibly as a precursor to a written response.

5 - Present Facts and Concepts in Writing - the ability to write facts and concepts both as an original text and as a response to another text.

6 - Appreciate and Enjoy - the ability to take pleasure from the aesthetic and purely entertaining aspects of text.

These expected responses to literacy tasks are numbered roughly in order of increasing complexity and reflect broadly some of the categories of literacy behaviours referred to by Bormuth (1974) and quoted in the previous chapter. In addition, it should be pointed out that any level will usually assume competence at performing previous levels. Thus, if an adult can competently perform at level 4 in social context 9, (ie: can Assemble Facts and Concepts in the context of Getting Employment or Being

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Unemployed), it can be assumed that he can also understand simple instructions, understand facts and concepts and select and discriminate facts and concepts in this context.

In the proposed model then, a literacy behaviour is the term given to the ability to perform a given expected response to a literacy task in a given social context. Fig. 4.1 presents the range of literacy behaviours as a grid or matrix of expected responses and contexts. A tutor attempting to build up a picture or 'map' of his/her student's abilities and experience in encountering real-life literacy tasks will be able to use this matrix as a guide to what has already been accomplished or assessed and what remains to be. It can also be used as a guide to acquiring types of teaching/learning materials.

It should be noted that the scope of social contexts of the matrix will be extended as tutor and student add voluntary/personal contexts reflecting the students' interests and concerns. In this sense the individual literacy curriculum development is not conceived as a closed, system design exercise with a definitive termination date that precedes its implementation. Rather, it is an exercise building upon the common core basis of

	Comprehend simple instructions (1)	Comprehend facts and concepts (2)	Select and discriminate facts and concepts (3)	Assemble facts and concepts (4)	Present facts and concepts (5)	Appreciate and enjoy (6)
Personal/ Individual relation- ships (1)						
Group relation- ships (2)						
Domestic and Home (3)						
Education and Training (4)						
Health (5)						
Func- tional/ Job (6)						
Consumer Matters (7)						
Travel (8)						
Getting employ- ment/being nemployed (9)						
Civic and Political (10)						
Entertain- ments/ Media (11)						
The Law (12)						

Fig. 4.1

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expected responses and common/imposed contexts, with frequent inbuilt evaluation based upon the growing elaboration of voluntary/personal contexts. This 'intrinsic' style of evaluation is one specifically noted as apt for CBL based systems. (Borich & Jemelka 1981). It is an exercise in open-ended design and implies a constant process of review and assessment which should involve the student.

As it stands, this curriculum model reflects the intention that it should be functional and selectable, but it cannot make any claim to be comprehensive and detailed in that it has not yet dealt with the cognitive/perceptual processes which Bormuth (1974) described as 'Decoding'. Bormuth, in fact saw these as the most basic form of literacy behaviour, but since that term has a specialised meaning for this study, these processes will be referred to as literacy skills. To be precise, literacy skills are defined here as cognitive/perceptual processes employed by the reader/writer to derive meaning from printed or written text or to produce printed or written text in response to a desire or need to express ideas, concepts or facts.

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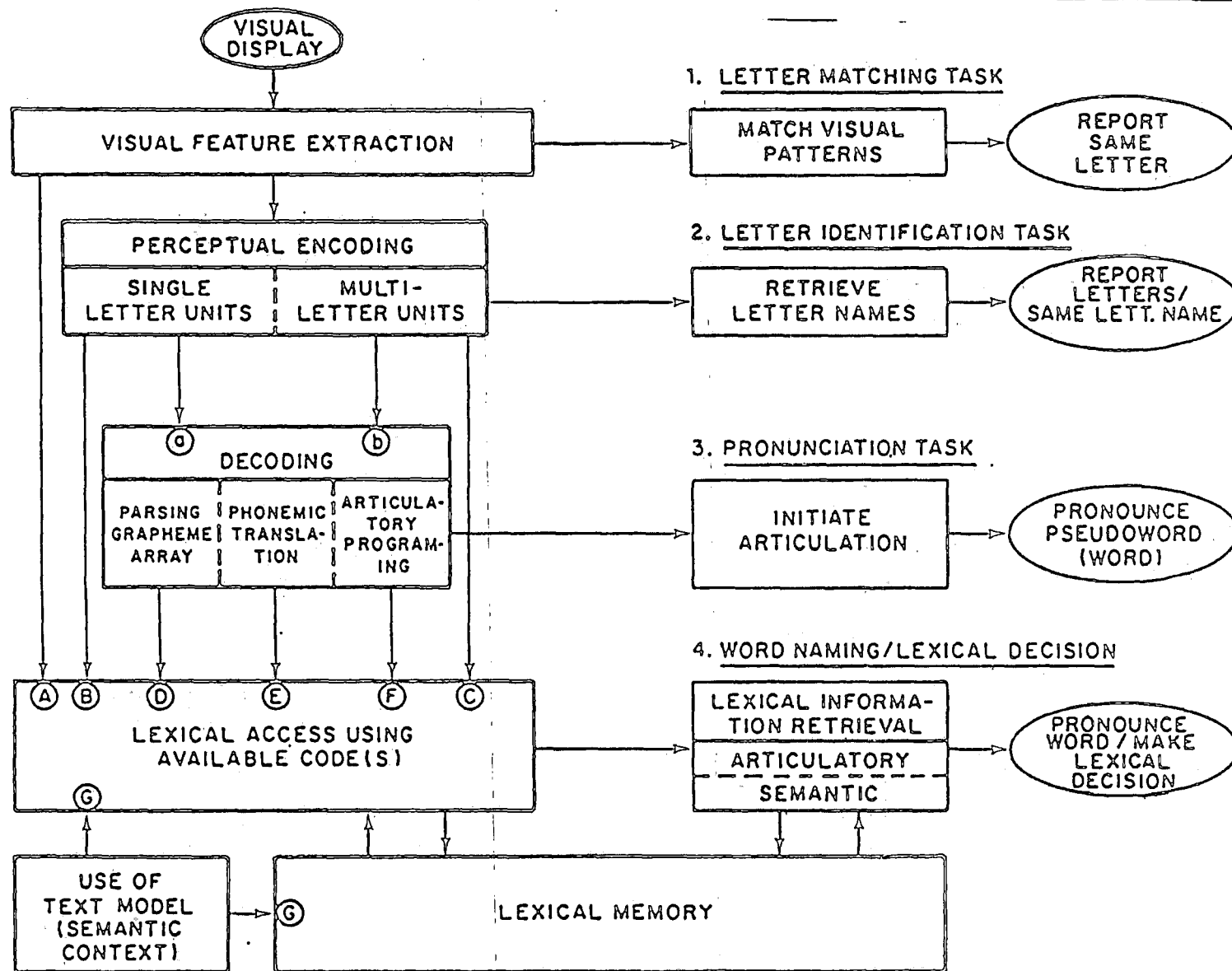
None of the authors discussing the adult literacy curriculum and mentioned in the previous chapter go so far as to specify, or even speculate on, the processes that enable meaning to be derived from text, (or vice versa).

The range of skills and systems described by Singer and referred to in the previous chapter go into some detail here but are derived specifically from the analysis and testing of school of school children. More relevantly, Frederiksen (1978) has carried out testing with young male adults, (U.S. Navy recruits in fact), and has produced a precise analysis of these processes, their workings and the relationships between them.

Frederiksen was concerned to discover the 'component skills' in reading which account for individual differences among reading, and in doing so postulated and attempted to validate a model of these component skills by chronometrical (time-lapse) measurements of single processing sub-systems under contrasting conditions in different subjects.

A schematic representation of Frederiksen's model is given in Fig 4.2. It distinguishes four main processing levels namely:

Fig 4.2 (after Frederiksen 1978)



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### 1. Visual Feature Extraction

### 2. Perceptual Encoding

### 3. Decoding

### 4. Lexical Access

Level 2, perceptual encoding, is further divided into components representing the encoding of individual letters and the encoding of familiar multi-letter units, such as 'sh', 'ing', etc. Level 3, decoding, is also subdivided into 'parsing', 'phonemic translation' and 'articulatory programming.'

Underlying the whole model is the concept that:

"....while component processes can be regarded as hierarchically ordered, the initiation of higher order processes (eg. lexical retrieval), does not necessarily await the completion of earlier processing operations."  
(Frederiksen, 1978 p. 29)

Frederiksen proposes that lexical access is initiated by a variety of inputs derived from any of the processing levels, whether by a spatial distribution of visual features, an array of individually encoded letters,



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overlapping encoded multi-letter units, a phonemic translation of an encoded array or even a stressed and articulated representation of the same.

In the conclusions of his study, Frederiksen makes two further points about this model of cognitive/perceptual processing skills which make it particularly attractive for this study, in that they suggest approaches or strategies in planning the individual curriculum for the adult student. First is the idea that different processes and skills are utilised depending on the nature of the task:

"....High frequency words may be recognised on the basis of their visual characteristics, without the completion of the grapheme encoding and decoding processes required for recognising unfamiliar words." (Frederiksen 1978, p. 29)

Second is the idea of a dynamic system in operation where low efficiency at one level is compensated for at another:

"....There are interactions (trade-offs) between the user of skills at one level of processing and the mode of processing and processing efficiency at higher levels

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of processing. Thus, an ability to perceptually encode multi-letter units reduces the demands placed on the decoding component, with a consequent increase in the efficiency of decoding. Readers who have high scores on....encoding multi-letter units....are also the fastest decoders, and they are likely to apply their efficient word-analysis skills in recognising common as well as rare words. On the other hand, readers who have a low level of skill in perceptually encoding multi-letter units have the greatest difficulty in decoding grapheme arrays into 'sound', and they are the ones who are most likely to reduce the depth of processing when visually familiar words are encountered....The modification in procedures for high-level processing (lexical access)) serves to compensate for low efficiencies in lower level component processes. Thus the system adapts to its own deficiencies, and is able to improve its overall performance when the stimulus materials permit such an adjustment of processing characteristics to take place." (Frederiksen *ibid.* p. 30 - his underlining)

The picture here is of a system allocating its components, its strengths and weaknesses, for a solution to a problem. We are reminded of Singer's observation, referred to previously, that phonological sub-systems seem to characterise early reading in children, that more visual sub-systems are employed in maturity, but that

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phonological and even kinaesthetic approaches tend to be employed by mature readers when the more visual strategy does not succeed with difficult or unfamiliar material. This suggests that a tutor assessing a student against such a model of skills would not feel obliged to concentrate on one particular level of processing skills in planning an individual curriculum, but would wish to ensure a balance or all-round set of abilities to ensure flexibility of response in the student.

The curriculum model to be used in this study adapts Frederiksen's model, adding it to the literacy behaviours matrix already described. The precise definition of the adaptation is outlined as follows.

A central assumption of the model is that an adult does not necessarily use all the literacy skills available to him when reading or writing. Skills are in fact grouped into four differing levels ie:

- 1 - Auditory and Visual Feature extraction
- 2 - Encoding
- 3 - Decoding
- 4 - Accessing lexical memory

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The definitions of these are as follows:

1 - Auditory/Visual Feature extraction is defined as the process by which the adult distinguishes between:

a: differing shapes in writing or

b: differing sounds in speech

2 - Encoding is the process by which the adult recognises distinguishable shapes in writing as constituting a familiar letter or group of letters.

3 - Decoding is the process by which the adult is able to match individual letters or letter groups to the sounds in speech which they are intended to represent.

The first three of these levels denote processes which may or may not be undertaken by an adult in reading or writing. Whether or not that process is employed depends on two variables: the relative ability of the adult as a user of literacy skills and behaviours and the relative difficulty of the literacy task in hand.

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The last of these levels refers to the accessing of lexical memory. The lexical memory is defined as the hypothetical part of the human brain in which words and their associated meanings are held and it is by using the lexical memory that an adult gets meaning to correspond to whatever stimulus has enabled him to access the lexical memory in the first place.

In reading, the literate adult has several possible routes to getting meaning from his lexical memory. He/She may:

a: Use Visual Feature extraction to get sufficient clues to provide subsequent direct access to the lexical memory, without recourse to the processes of Encoding or Decoding.

b: Use Visual Feature extraction prior to encoding the 'extracted' features as recognisable letter or letter-group shapes. Access to Lexical memory may then be possible without further recourse to the Decoding process.

c: Use all three levels, Feature extraction, Encoding and subsequent Decoding of recognised letters or letter groups into their appropriate sounds and articulation patterns before being able to access the Lexical memory

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In writing, a similar but reverse pattern occurs. Having generated a word from lexical memory as a response to a desire to communicate in writing, the adult may need to go through similar varied combinations of the first three process levels before being able to transcribe the word in writing.

Process levels are not skills in themselves. An adult may use several component literacy skills at each level in order to enable that process to take place. In fact literacy skills can be categorised according to the level of processing at which they are used, as shown in Fig. 4.3

The curriculum model therefore, looks on the ability to read or write individual words as the selective exercise of these sixteen identifiable skills. Each is explained in detail below.

**1. Sound input discrimination skills** - the ability to distinguish the different sounds made in speech. This is, obviously, a prerequisite to a meaningful understanding of spoken language.

Level 1 - A/V Feature Extraction:

Used in Reading:	Used in writing:
1. Sound input discrimination skills	1. Sound input disc. skills
2. Visual input disc. skills	2. Visual input disc. skills
	3. Motor control skills

Level 2 - Encoding:

Used in Reading:	Used in writing:
4. Single letter recognition	4. Single letter recognition
5. Letter group recognition	5. Letter group recognition

Level 3 - Decodings:

Used in Reading:	Used in writing:
6. Sub array recognition	11. Sub word Phonemic Translation
7. Array recognition	12. Word Phonemic Translation
8. Sub array phonemic translation	13. Spelling pattern checking
9. Array phonemic translation	14. Word articulation
10. Array articulation	

Level 4 - Accessing Lexical memory:

Used in Readings:	Used in writing:
15. Use of context evidence	16. Lexical access and retrieval
16. Lexical access and retrieval	

Fig 4.3.



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2. **Visual input discrimination skills** - the ability to distinguish the differing marks and symbols used to make up the formations known as 'letters'. Note that this does not imply the ability to recognise letters - it describes simply the ability to distinguish between, say, a straight line and a curved line.

3. **Motor control skills** - the ability to co-ordinate hand and eye in producing writing.

4. **Single letter recognition** - the ability to recognise a mark or collections of marks as constituting a familiar single letter of the alphabet. This does not imply any ability to reproduce the sound of that letter.

5. **Letter group recognition** - the ability to recognise a mark or collection of marks as constituting a familiar group of letters of the alphabet. An example would be the recognition of the letter group 'th' as a group rather than two separate operations, recognising 't' and then 'h'. Again, no ability to reproduce the sound of the group is implied.

(6 - 14 **Decoding**: the following terms used in describing Decoding skills have specific meanings as defined below:



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**ARRAY** - a group of letters constituting a separate unit, to which, as yet, no meaning has been assigned from lexical memory. In other words, a word before meaning has been given.

**SUB-ARRAY** - a single letter or group of letters forming part of an array.

**PHONEMIC TRANSLATION** - the ability to assign the correct sounds to a single letter or group of letters

**ARTICULATION** - the ability to give the correct stresses and pronunciation patterns reproducing the sound of a word or an array.

**WORD** - a group of letters to which a separate meaning has been successfully assigned from lexical memory.

**SUB-WORD** - a single letter or group of letters forming part of a word.)

6. **Sub-array recognition** - the recognition of a single letter or group of letters as a part of a word likely to have meaning or an influence on meaning. For example the recognition of 'ing' as a meaningful part of the array 'meaning'.

7. **Array recognition** - the recognition of a letter or group of letters as constituting a likely separate word with a separate meaning of its own. For example, the recognition of 'a' or 'meaning' as separate units likely to have meaning.

8. **Sub-array phonemic translation** - the ability to reproduce (or 'hear') the sound(s) represented by a recognised sub-array.

9. **Array phonemic translation** - the ability to reproduce (or 'hear') the sound(s) represented by an array.

10. **Array articulation** - the ability to reproduce the correct stresses and pronunciation patterns of an array.

11. **Sub-word phonemic translation** - the ability to reproduce (or 'hear') the sounds of part of a word generated from the adult's vocabulary or lexical memory.

12. **Word phonemic translation** - the ability to reproduce (or 'hear') the sounds of a word generated from the vocabulary or lexical memory.

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13. **Spelling pattern checking** - the ability to recognise standard configurations of letters which are acceptable ways of representing the sounds of words or sub-words.

14. **Word articulation** - The ability to reproduce the correct stresses and pronunciation patterns of a word generated from the vocabulary or lexical memory.

15. **Use of context evidence** - the ability to use the meanings of surrounding words in a piece of text to deduce the meaning of an array.

16. **Lexical access and retrieval** - the ability to find meanings in the human memory as a result of varying stimuli.

As has already been indicated, a literate adult does not necessarily use all the available literacy skills when reading or writing. A competently literate adult does not normally need to decode in order to achieve meaning from reading. Provided that literacy task in hand is not too complex or difficult he/she will frequently achieve successful access to lexical memory by taking cues from letter group recognition. In addition, the literate adult will frequently not need to read every word or letter in a literacy task, but will deduce many words from the

context. In fact a sampling process is taking place, overall meaning frequently being arrived at by 'guessing' from context.

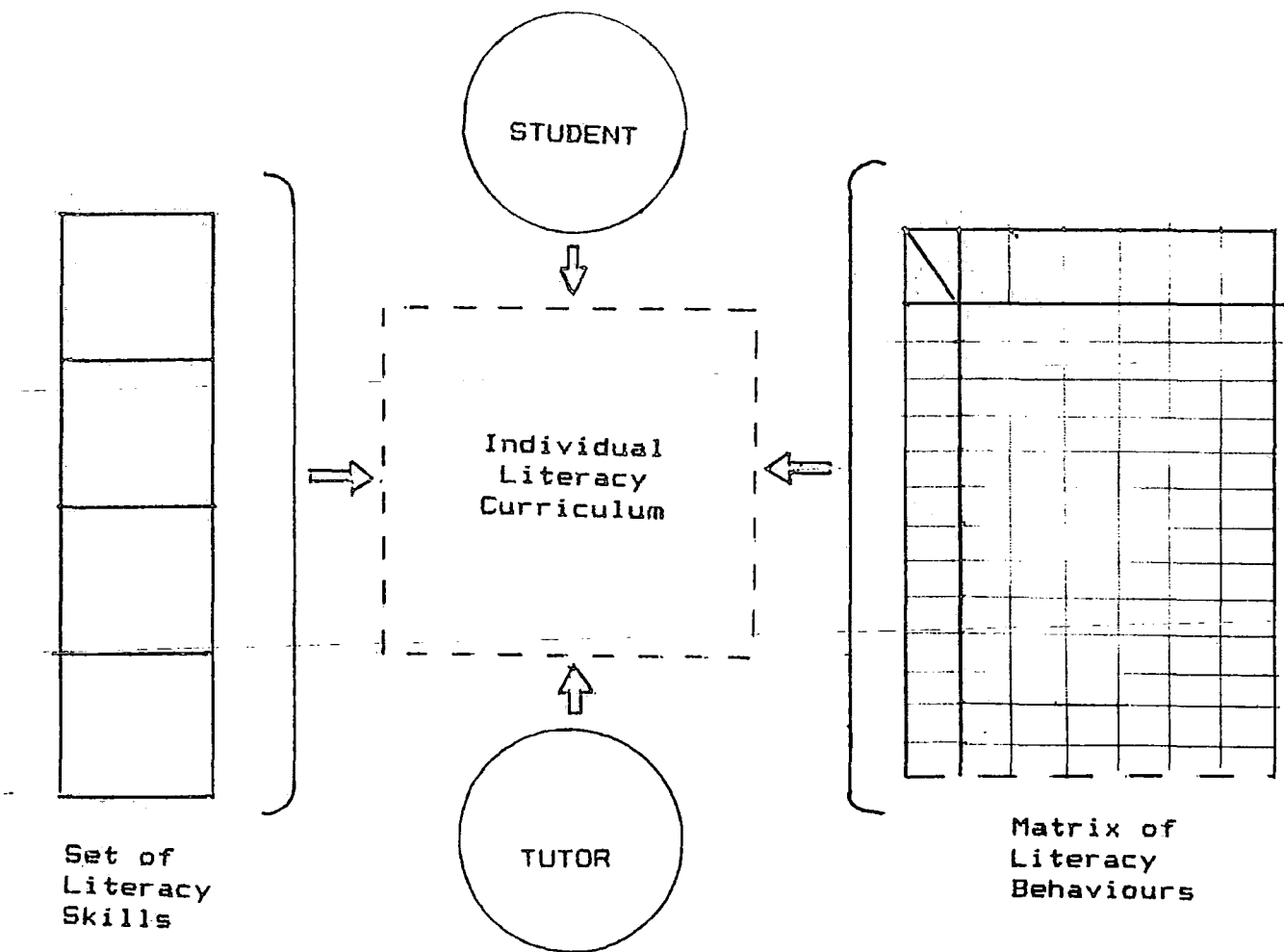
However, as soon as a literacy task becomes unfamiliar or difficult for an adult, then he/she will automatically fall back to more detailed processing of text, and may, for instance need to decode some unfamiliar material before being able to achieve access to lexical memory.

Generally speaking, the more ability an adult has to process at all levels, the more flexible his response will be to the varied challenges presented by an assortment of real-world literacy tasks. In teaching literacy skills to adults then, a useful strategy would seem to be to ensure that an adult has an all-round capability at different levels of processing.

The curriculum model built from the descriptions of literacy skills and literacy behaviours is presented schematically in Fig. 4.4. The set of literacy skills and the set of common/imposed contexts for literacy behaviours represent the 'common core' of the curriculum, while the voluntary/personal contexts add the necessary flexibility in individualising the curriculum.

Diagrammatic Presentation of Concept of MALCM Curriculum Model

Fig 4.4



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This combined model, it is hypothesised, presents a structured description of the behaviours and skills employed by mature adults in responding to everyday literacy tasks. It provides, in the first place, a tool for assessment for tutors. A tutor approaching the task of assessing the abilities and needs of a new student can use it as a check list of topics and items upon which to base a gradual assessment process. Secondly, it provides a 'map' to assist in planning the individual curriculum, revealing the literacy skills and behaviours that the student will need to be proficient in and their relationships with others, and showing the ground that has already been covered and that which remains.

It is quantifiable in the sense that any discrete skill or behaviour in the model can be assigned a measurement or 'score' according to the inclination of the user; should a supervisor or organiser wish to standardise a system of measurement for a group of students then it provides a tool for group assessment and comparison if required. Certainly, if adopted as a curriculum model for several groups of students, it should provide a means of communication about the curriculum and about student ability and achievement between all concerned, both staff and students.

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To summarise, this model provides a picture of the cognitive/perceptual processes used in reading and writing (referred to as literacy skills). It also attempts to view literacy as a real-world, task-based form of behaviour performed by adults in contexts that are commonly experienced and also voluntarily selected (literacy behaviours). It is intended to answer the requirements specified earlier, that it should be **comprehensive, detailed, selectable, functional, structured, quantifiable** and **communicable**. On this basis it was chosen in the next stage of the study as the instructional model for the design of the CBL system.

The design of the CBL system and its method of implementing this curriculum model form the matter of the next chapter.

## CHAPTER FIVE - DESIGNING

### THE CBL SYSTEM

#### 5.1 Introduction

This chapter describes the design and implementation of the CBL system itself, subsequently to be known as the 'Microcomputer Adult Literacy Curriculum Model' (MALCM). The context of design as imposed by constraints of hardware and language are described and the system design approach and technique are outlined. The operation and functions of the systems are described in operational terms in the context of the New College ABE Unit, after which the stages of the design process are explained. Finally the operation of the coded programs is examined and testing and debugging procedures are outlined.

#### 5.2 Hardware and language constraints

As mentioned earlier, the system was to be run on a BBC microcomputer with 32K of main memory, supplemented by a dual 80 track disc drive and with output to an Epson MX80 FT/2 dot matrix printer and a colour VDU.



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The high-level language available internally in the BBC micro is BBC BASIC, an extended, structured form of the BASIC language that, because of its reasonably sophisticated use of procedures in programming, allows for a 'modular' approach to program design. Alternatives to BBC BASIC that were available at the time of developing the MALCM system were not numerous. Languages such as FORTH and LISP were available on disc but not on ROM and it was felt that the necessity of having to boot up a language into the system as well as booting up the MALCM system itself would complicate matters unnecessarily, as well as having detrimental effects on the amount of main memory space subsequently available.

The BBC Micro has a built in 6502 assembly language and this was considered as a possibility for writing the MALCM system. However the author's relatively greater familiarity with BBC BASIC as opposed to the assembly language, or indeed any other alternatives, seemed to indicate that a faster system implementation would be possible if it were adopted.

This is not to say that BBC BASIC was felt to be the ideal language for writing such a system: indeed one of the points that would bear examination in the system evaluation was the suitability of the BBC BASIC language

for producing a CBL system with a strong emphasis on the data handling aspects of CML. The decision was made, however, to produce the MALCM system in BBC BASIC.

Because only one machine was regularly available for use in the ABE Unit, the assumption behind system design and usage was that all users of the system would have to share this one machine and its peripherals. Naturally, any future expansion of resources would allow the system to run on other BBC machines, but only on a 'stand alone' basis. No facility for networking was considered in the system design, there being no indication at the time of writing that such a facility would ever be made available to a relatively small organisation such as the ABE Unit.

### 5.3 System design - approach and technique

In producing any complex, computerised data handling system, it is vital that a thorough analysis of the data to be handled and the procedures for handling it be carried out prior to any coding. This is an established practice in data-processing in commerce and industry, where a variety of systems analysis techniques have been established. Since an educational organisation, whatever its size, processes information, or data, on a regular

basis, there is no reason why such techniques, or one of them, should not be applied in designing a CBL system for a small organisation like the New College ABE Unit. The process of conscious and structured design applied to educational non-CBL ends has more than one proponent. (eg. Romiszowski, A.J., "Designing Instructional Systems", 1981)

The technique used in the system analysis and design for MALCM is that described by J-D Warnier (1979), which concentrates on a rigorous logical analysis of the data involved in the system as:

"....a set in the sense defined and utilised in mathematical theory." (Warnier 1981 p. 1)

Treating sets of data in this fashion permits them to be manipulated in classical logical operations in order to achieve the most parsimonious and efficient systems of processing. Such an arrangement also effects the process of program coding, rendering it efficient and lacking in redundant effort and waste of time and memory. The process of system and program development is also speeded up by such care in data analysis and design in the early stages of system analysis.

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The design of the system is thus described in this chapter, firstly in narrative terms of the implementation of the curriculum model already delineated, then in terms of the stages prescribed in the Warnier technique:

1. The definition of the set of data used by the ABE unit in implementing the curriculum model outlined in the previous chapter.

2. The definition of the outputs required from the system, together with data required for them and the processes necessary to produce them. (Units of Accomplishment)

3. The definition of primary data and files

4. The definition of secondary data and files

5. Operational organisation

### 5.4 The MALCM system - an operational outline in context

The fundamental ideal behind the MALCM CBL system is simple enough - it stores information about individual students that is related directly to curriculum model elaborated in chapter three. For each student for whom the

system keeps a file, information is held regarding his/her assessed competency in the sixteen literacy skill areas and in the range of literacy behaviours.

#### 5.4.1 Tutors' usage

Each student's file is updated regularly by his/her tutor, possibly with the involvement and co-operation of the student. That is, if a tutor considers that a particular topic from the curriculum model has been either assessed or has been learned, revised or has shown improvement in a recent session, then he or she can enter a new rating for that particular skill or behaviour. Ratings are given on a very simple, impressionistic basis, derived from the literacy assessment procedure of Herbert Kohl (1973).

Tutors are in fact asked to give a rating on a scale of 1 - 4 on the following basis:

- 1 - Absolute Beginner
- 2 - Starting to make progress
- 3 - Quite good
- 4 - Perfectly competent

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Thus, if a student, at the end of a particular session has shown considerable improvement in, say, letter recognition, (Skill 4), from the previous session, the tutor may decide that he should be classed as 'quite good' instead of, as previously, 'starting to make progress'. On using MALCM at the end of that particular session, the tutor would therefore 'update' his rating on the Skill 'Letter Recognition' from 2 to 3.

Similarly, ratings of Literacy Behaviours are assigned on the same scale of 1 to 4. If at the end of the same session, the tutor is happy that the student is very good or competent at reading the travel information on his local bus stop, then he/she will assign a rating of 4 for the behaviour which is identified by the expected response 'Read and understand facts and concepts' and by the common/imposed context of 'Travel'.

At the first time of using the MALCM system, all a student's possible Skill ratings and Behaviour ratings will be unrated. That is, no rating will have been assigned to them. There is no compulsion on the tutor to give any rating until he/she is sure that it is a reasonably accurate one. Thus, the tutor is not required to rate skills or behaviours which he/she has not had a chance to assess. Ratings or updated ratings are only given as a result of genuine assessment and/or conviction

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that some progress has been made. It follows then, there will be occasions on which the tutor may come to the MALCM system with no new ratings or updated ratings to give.

This simple form of assessment was selected for several reasons. Firstly, it allowed for rapid assessment without the need for reference to formal testing. Secondly, it was felt that many tutors involved would feel overburdened and out of their depth if asked to carry out any more detailed procedures. Thirdly, it was felt that it might act as a guideline to encourage tutors to develop their own informal assessment procedures, related to the one to four scale, but based on their own experience of tutoring with a particular student, and therefore more meaningful to them than a prescribed, imposed assessment procedure.

Each time the tutor uses the system it will, regardless of whether or not new ratings have been entered, produce for the tutor and the student one of its major outputs, a **Literacy Curriculum Profile, (LCP)**, consisting of a printout of the current ratings in Skills and Behaviours for the student. The intention behind the LCP is that it should focus the tutor on the work or assessment that has and has not been done and to provide a 'hard copy' reference to the curriculum model as a guide for planning and executing future work. The LCP, and thus the system file for a student, allows space for the addition, over a

period of time, for up to 20 voluntary/personal contexts for Behaviours. These can of course be rated in relation to expected responses along with the common/imposed contexts. Also included in the LCP are suggestions for assessment and revision topics in both Skills and Behaviours. The derivation of these suggestions is discussed later in reference to supervisor's and organiser's access to the system. An example of an LCP is given in Figs. 5.1(a) and 5.1(b).

The MALCM system therefore, relies on regular input from tutors as the basic source of its information. In summary, if the system is to function, it is necessary for tutors to use the system for the following purposes:

- 1 - Evaluating and assess the progress of teaching and learning by Tutor and Student.
- 2 - Making decisions about the student's curriculum, both on a short term and a long term basis.
- 3 - Keeping a physical printed record of the student's progress and abilities in Literacy Skills and Behaviours.



NEW COLLEGE, DURHAM - A.B.E. UNIT  
 \*\*\*\*\*  
 MALCOM SYSTEM (COPYRIGHT J.A.Byrne 1983)  
 LITERACY CURRICULUM PROFILE

Supervisor:  
 Date: 11/01/84

(1)

\*\*\*\*\*

NAME: (1) LAST LCP #11 ON 30/12/83

TUTOR:

THIS LCP IS #12

COURSE:

\*\*\*\*\*

LITERACY SKILLS RATINGS CHECK

LEVEL 1 - FEATURE EXTRACTION

11 - Sound input disc.skills	4
12 - Vis. Input disc.skills	4
13 - Motor control abilities	4

LEVEL 2 - ENCODING

14 - Single letter recognition	4
15 - Letter group recognition	4

LEVEL 3 - DECODING

16 - Sub-array recognition	3
17 - Array recognition	3
18 - Sub-array Phon.Translation	3
19 - Array Phon.Translation	3
110- Array articulation	3
111- Sub-word Phon.Translation	3
112- Word Phon.Translation	3
113- Spelling pattern checking	2
114- Word articulation	3

LEVEL 4 - USING LEXICAL MEMORY

115- Lexical access/retrieval	3
116- Use of context evidence	3

Revision topic is: 13- Spelling pattern checking

The next skill to start learning is: No Objective - all skills have been tackled.

PLEASE RETAIN THIS L.C.P. FOR FUTURE EVALUATION.

Fig. 9.1(a)

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Space for Fig 5.1a

# LITERACY BEHAVIOURS CHECK

Current ratings for the student are shown below. Each figure shows a rating for a particular Expected Reaction in one particular Social Context.

	Comprehend simple instruction(s) (1)	Comprehend facts and concepts (2)	Select and discriminate facts and concepts (3)	Assess facts and concepts (4)	Present facts and concepts (5)	Appreciate and enjoy (6)
Personal/ Individual Relationships (1)	4	4				
Group Relationships (2)						
Domestic and Home (3)	4	3	3	2	3	3
Education/ Training (4)	4	3	3			
Health (5)	4	2				
Functional/ Job (6)						
Consumer matters (7)	4					
Travel (8)						
Getting employment/ Being unemployed (9)	4	4	2	2	2	1
Civic/ Political (10)	4					
Entertainment /Media (11)						
The Law (12)						
GARDENING	4	4	3	3	2	2
HOME DECORATION						
WALLPAPERING						
CREATIVE WRITING						

The student's next revision topic is: Comprehend facts and concepts (2)  
in the context of: Health (5)

The student's next learning objective is: Present facts and concepts (5)  
in the context of: Personal/ Individual Relationships (1)

The next Expected Reaction level for the student to aim at is: Appreciate and enjoy (6)

PLEASE RETAIN THIS LCP FOR FUTURE EVALUATION

Fig. 5.1(b)

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Space for Fig 5.1b

4 - Receiving information on the nature of Literacy Skills and Behaviours as an aide-memoire to assessment and evaluation.

In order to ensure efficient and successful use of the system, Tutors are responsible for several functions at frequent intervals (possibly the end of each teaching session with their student.) Specifically, they should:

5 - Review the activities of the session and enter into the MALCM system any new ratings for Literacy Skills which seem appropriate.

6 - Review the activities of the session and enter into the system any new ratings for Literacy Behaviours which seem appropriate.

7 - Review their growing knowledge of the student and enter into the system any new Personal/Voluntary Contexts for Literacy Behaviours that seem appropriate.

8 - Obtain from the system a printed 'Literacy Curriculum Profile' (LCP) for their student which should then be consulted and studied before being filed for future reference.

In order to keep tutors aware of the concepts involved in the curriculum model, the system offers tutors the opportunity to review some of those concepts at the time of rating Skills and Behaviours. Selecting a certain function allows them to read through a simple 'User Help' sequence of explanation and demonstration before entering the rating sequence. (Point 4 above).

### 5.4.2 Supervisors' and Organiser's usage

Although the tutor is the primary source of information in the MALCM system, supervisors and organisers can take advantage of its facilities in summarising and sorting that information. In addition they are required to update the system in terms of creating files for new students and entering information on tutors in supervisory groups.

In order to gain access to these options and the 'privileged' information that they contain, the supervisor will, on selecting them, be requested to enter the security code for that particular supervisory group. This code is obtained from the Organiser and should be familiar to the supervisor. If an inaccurate code is entered, no access will be granted. In addition, if more than three inaccurate attempts are made, the system will automatically stop input.

The major outputs for supervisors and organiser are the Supervisor Summary (SS) and the Learning Pattern Analysis. (LPA)

The Supervisor Summary prints out details of all tutors and students working in a given supervisory group, including details of which tutor is working with which student and when the last LCP access for each tutor/student pair was carried out. Also included is the date of the last SS for the particular supervisor whose group is being summarised. This is followed by a summary of the ratings for each student in the group. These summaries give **weightings** for each student at the four skill process levels and for each common/imposed behaviour context as well as any voluntary/personal context that might have been entered for the student. **Weightings** are an important 'measuring' device in the MALCM system - while it is not necessary for supervisors to know how they are actually calculated, it is necessary to be able to interpret them. They are in fact calculated from ratings entered by tutors for their students and are used to decide upon revision topics and learning objectives. They also provide a means for comparing student performances and abilities within the group and across the whole system.

It is necessary to point out at this stage that when a tutor enters a competency rating for a student for a particular skill or behaviour, that rating is held on file for that student. In addition however, and not notified to the tutor or student, the system also includes with the 1-4 competency rating a duration rating of 9. This is then decremented by one at each LCP access to the system by a tutor, unless the original competency rating was 4, in which case it remains at 9. By this means the system has some rudimentary knowledge of the time factor involved in student assessment. The duration rating is used to advise tutors on revision topics, referred to earlier, by considering not only competency ratings but the length of time that has passed since a particular topic has been assessed or rated. As indicated it is also used to produce weightings for behaviours and skill process levels in the SS as shown in Table 5.2.

Due to the use of regularly decremented duration ratings in the weighting calculations, weightings given in the SS for particular Skill process levels or Behaviour Social Contexts may be seen to decrease from one SS to another. A fresh rating being assigned will, of course restore the weighting to at least its previous highest level. Fig 5.3 gives an example of an individual student summary and its possible interpretation.



Overall Skills Weighting (Ws) is calculated as:

$$W_s = \frac{W_1 + W_2 + W_3 + W_4}{4} \quad (\text{Range of } W_s \text{ is } 0 \text{ to } 3600)$$

where  $W_1 - W_4$  are weightings for Skill Process levels 1 - 4 and are calculated as:

$$W_n = P \times L \times D \quad (\text{Range of } W_n \text{ is } 0 \text{ to } 3600)$$

where  $n$  is 1 - 4 and where

$P$  = % of elements rated at level  $n$

$L$  = mean of competency values of ratings at level  $n$

$D$  = mean of duration values of ratings at level  $n$

Overall Behaviours Rating (Wb) is calculated as:

$$W_b = W_r \times B - 1 \quad (\text{Range of } W_b \text{ is } 0 \text{ to } 1296)$$

where

$B$  = No. of first totally unrated Expected Reaction Column in the Literacy Behaviours matrix and

$W_r$  is the mean of weightings  $W_1 - W_n$  for Social Context rows in the Literacy Behaviours matrix and

$W_n$  is calculated as:

$$W_n = N \times L \times D \quad (\text{Range of } W_n \text{ is } 0 \text{ to } 216)$$

where  $n$  is 1 - 32 and where

$N$  = No. of rated elements in row  $n$

$L$  = mean of competency values for row  $n$

$D$  = mean of duration ratings for matrix row  $n$

Table 5.2

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```
=====
Student ID#:    4      !Student Name:    Arthur Cox
=====

                                Weightings

Skill Level 1 - Feature extraction          3600
Skill Level 2 - Encoding                    450
Skill Level 3 - Decoding                    0
Skill Level 4 - Lexical memory Access      0
OVERALL SKILL WEIGHTING                     1012

Common Social context ratings (1 - 12):
*0 *0 *0 *0 *0 *0 *0 *0 *0 *0 *0 *0
V/P Social Context Ratings (13+)
*24
OVERALL BEHAVIOURS WEIGHTING:                3
=====
```

Fig. 5.3

The first weightings shown in Fig 5.3 are for Literacy Skills at each processing level. The maximum weighting possible here is 3600, the minimum being 0. The higher the weighting therefore, the more apparently competent the student at that level of processing, the assessment being based on the tutor's ratings for the student. The fictitious student named in Fig 5.3 therefore has been assessed as perfectly competent at the three skills in process level one. However, his weighting at the encoding

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level is low, indicating either low ability or a lack of assessment or both. Obviously no assessment has as yet been carried out for skills at levels 3 and 4, a fact indicated by the 0 weighting.

The next weightings shown are those for the 12 Common Social Contexts of Literacy Behaviours. Weightings here reflect the relative recorded abilities at successfully performing Expected Responses in each of these contexts. Maximum possible here is 1296 with the minimum, a 0 weighting, indicating that no ratings have been assigned for that particular Social Context. In the case shown in Fig. 5.3 no ratings have as yet been given for any of the 12 Common Social contexts. However, one V/P Social context has been added to the student's record and a relatively low rating of 24 given. The overall behaviours rating is, like that for skills, an arithmetical mean, slightly adjusted. In this case it is low, reflecting a widescale lack of assessment in Literacy Behaviours.

An overall impression of this student's abilities therefore might be that, although assessment is apparently at an early stage, general ability is not high.

The LPA is an addition to the SS, in that it is printed automatically with it. It simply consists of three histograms which display overall information for the

students on the group. The first shows the overall skills and behaviours weightings for each student in the group as percentages of the maximum possible ratings. An example is provided in Fig. 5.4

The second histogram shows the number of students in the group who are recorded as working at each of the Expected Response levels in the Literacy Behaviours matrix. Fig. 5.5 gives an example.

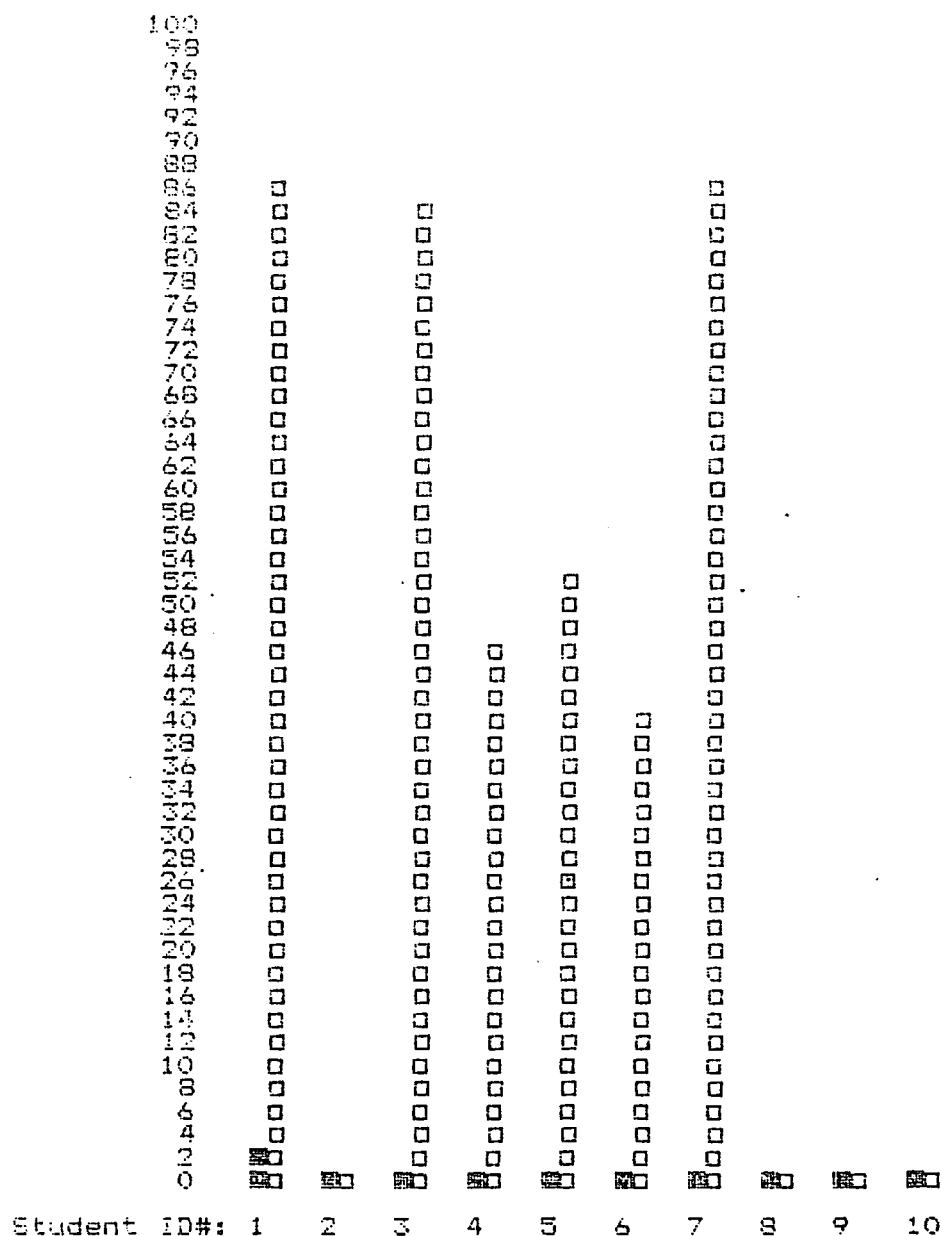
The last histogram shows the mean percentage weightings for the whole student group over the four Skill Process levels. Fig. 5.6 gives an example.

### 5.4.3 Revision topics and learning objectives

The system also uses weightings to generate suggested topics for revision and to indicate new objectives for assessment and learning.

For Literacy Skills it selects firstly the process level with the lowest rating and then the single skill in that level that has the lowest weighting. This is then offered as the suggested revision topic on the LCP. In offering objectives in Skills, it selects the lowest weighted process level that still has unrated elements. The first

Percentage  
of maximum:

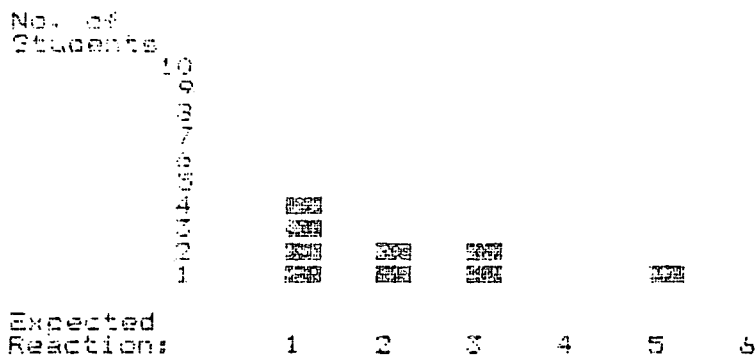


This histogram gives Skill weightings and Behaviour weightings as percentages of the maximum possible.

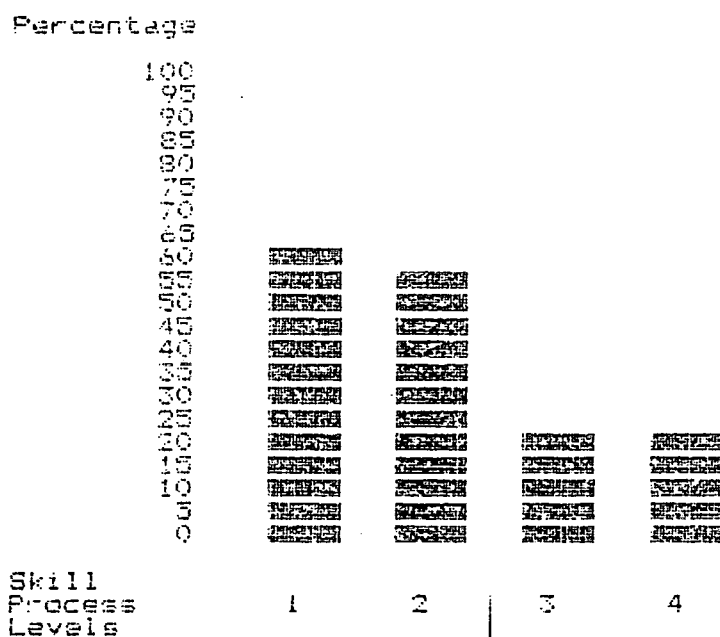
■ = Behaviour weightings (max=1296)

□ = Skill weightings (max=3600)

Fig 5.4



This histogram shows the number of students working at each of the E.R. levels 1-6.



This histogram shows the mean percentage weightings for the student group over the four Skill Process Levels

(MAX = 3600)

Figs 5.5, 5.6

detected element in that level is offered as the objective for learning and assessment in the LCP.

For Literacy Behaviours the system produces revision topics by the lowest rated row in the matrix M which has rating entries with competency valuse of less than 4. It then offers the lowest rated element in that row as the revision topic. In selecting assessment/learning objectives for behaviours, it selects the column next lowest in number to the first completely unrated column, and offers the first detected unrated element in that column as an objective. It also indicates the title of the Expected Response for the first completely unrated column as an objective for assessment and learning.

These procedures are illustrated graphically in the derivation of virtual data shown in Fig. 5.7.

**System Data Operations** are the functions available to supervisors (or the organiser) which allow the addition or deletion of students and tutors to or from a given supervisory group record. The supervisor simply types in the name of the individual concerned, along with some other basic information. If addition to the group is required, the system will simply create a new file for the individual; if deletion is needed, that

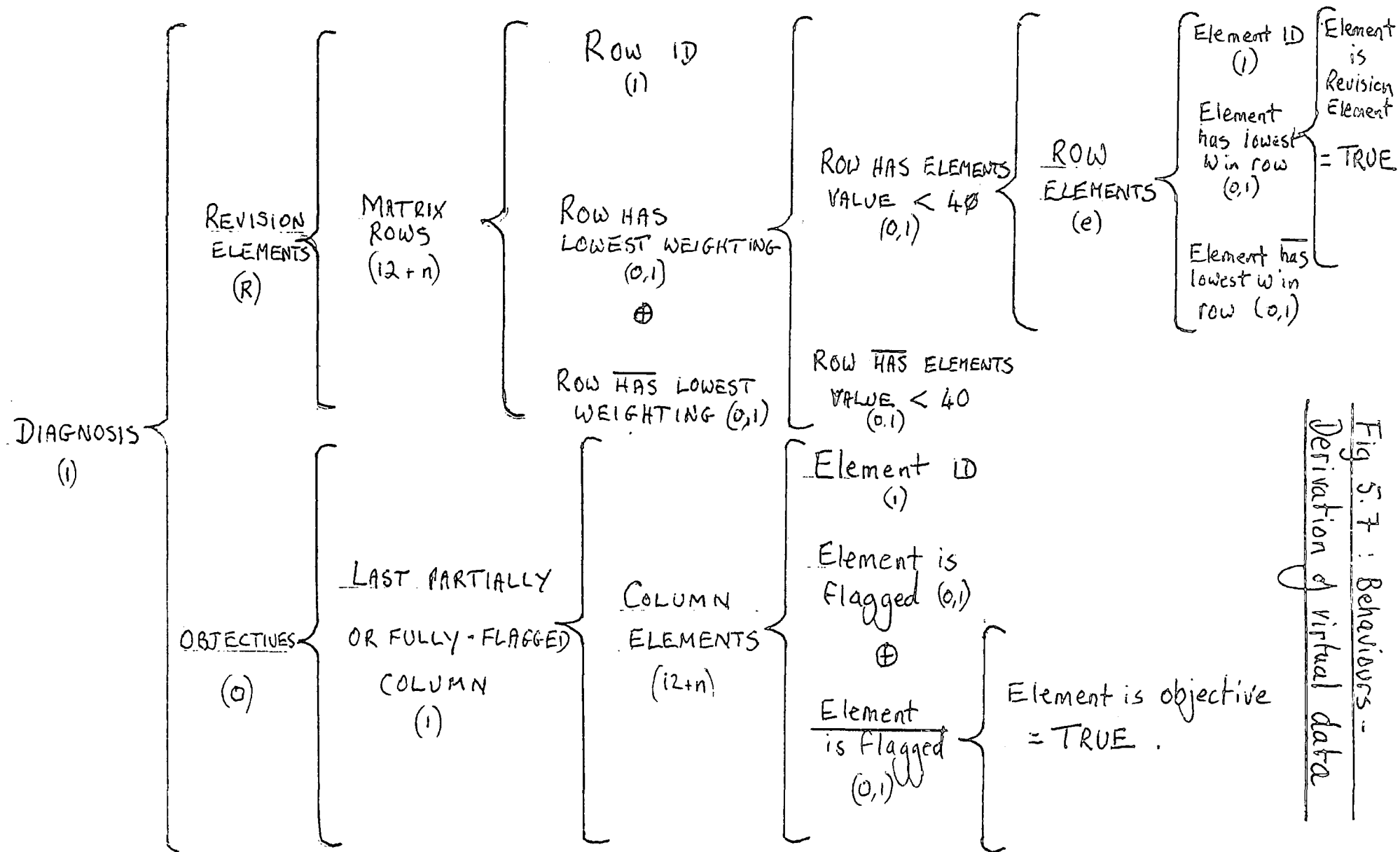


Fig 5.7 : Behaviours -  
Derivation of virtual data



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person's file is flagged as deleted, though in fact actual deletion does not take place. No personal data is held on the system, other than names of individuals. Each tutor or student is identified in the system by a unique Identification Number (ID#).

In summary therefore, for the system to run efficiently supervisors and the organiser are responsible for:

- 1 - Starting up the system at the beginning of a session.
- 2 - Selecting the tutors' menu ready for use during a session.
- 3 - Closing down the system at the end of a session.
- 4 - Producing regular LPA/SS printouts for his/her group.

In addition, supervisors would be expected to:

- 5 - Help tutors and their students to use the system.
- 6 - Report difficulties and problems back to full-time ABE Staff.

## S.5. System Design

### S.5.1 Data Definition and analysis

The first stage of system design in the Warnier approach is the definition of the organisation's set of data. Warnier defines this concept as follows:

"The Organisation's set of data is composed of the data concerning: (a) the organisation and the entities in relation with it, (b) the exchanges between the organisation and these entities and (c) the object of these exchanges. The set is divided into two subsets: the data to be processed and the programs. The transactions and the required output do not belong to this set. The entities can be internal or external to the organisation."  
(Warnier 1981 p. 11)

If we assume that the organisation in this case is the New College ABE Unit and the entities in relation to it, (in this case all internal), are the students, tutors, supervisors and organiser, then this data set definition has already been produced in the description of the curriculum model given earlier. It is a restricted set in the sense that it deals with instructional information and excludes much of the data that is used in the ABE Unit,

such as administrative data, resource data etc, but provides the data definition required for the next stage of system development. Since it has been expounded in some detail already, no further attempt at definition will be made here.\_

### 5.5.2 Definition of Outputs

The next stage of system design is to specify precisely the outputs required from the system as a pre-requisite to analysing the data needed to produce them.

(It is worth noting at this stage that the Warnier approach is such that a precise definition of data in these terms would permit the expansion of a system to include expanded sets of data or additional subsets. The expandability of a system like MALCM is discussed later in this study in chapter 9.)

As indicated in the operational outline, the system outputs are:

**Literacy Curriculum Profile**

**Supervisor Summary**

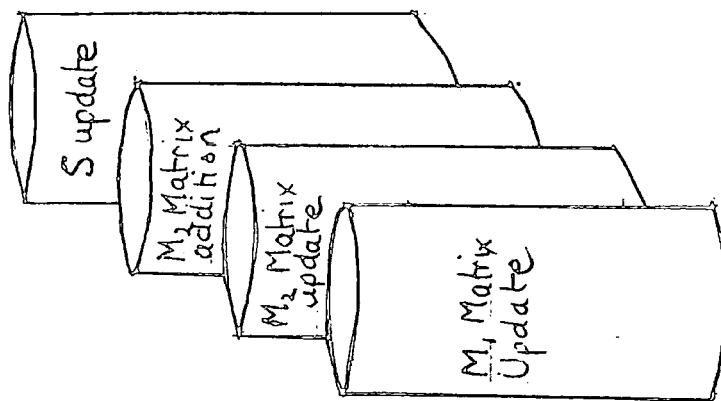
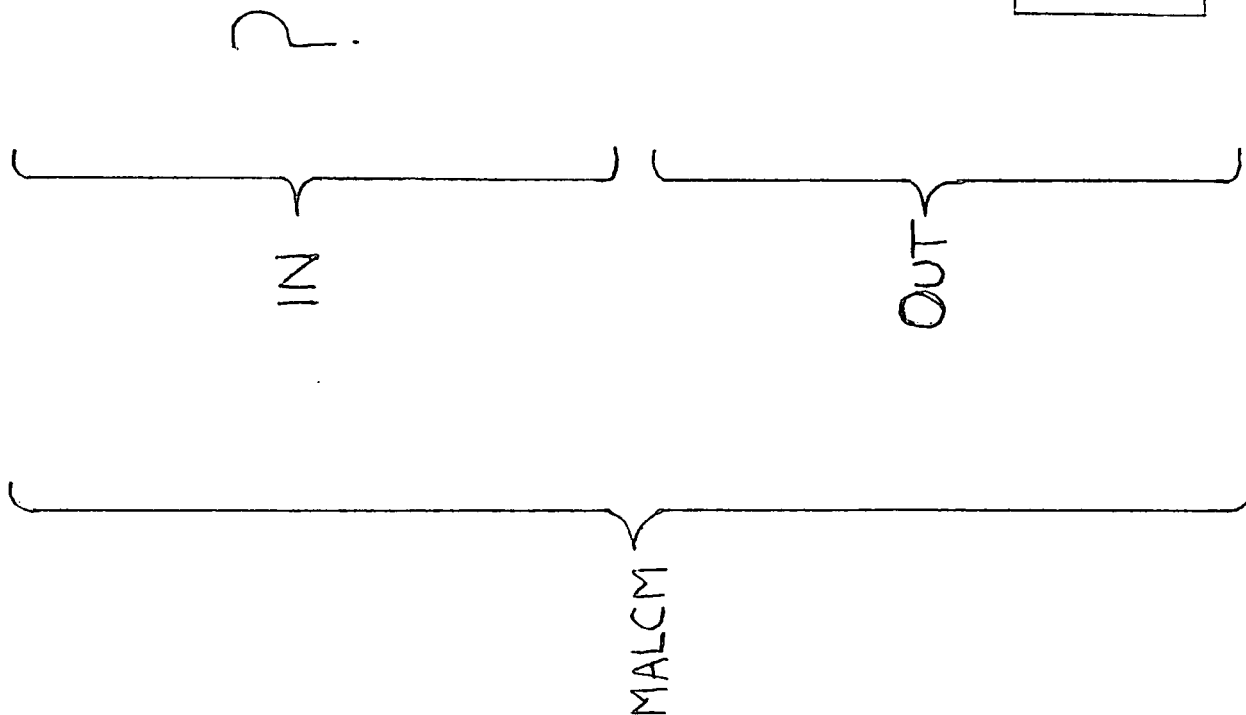


Fig 5.8: MALCM SYSTEM -  
OUTPUTS

## Learning Pattern Analysis

In addition several internal transactions on system data are required, namely updating on competency and duration ratings in Literacy Skills, updating on ratings in Literacy Behaviours and additions to the range of voluntary/personal contexts. Fig 5.8 displays this situation, differentiating between the SS required for the Supervisor of a group and the SS required of all groups for the Organiser (SO). Since Literacy Behaviours are conceived of in matrix form, the data relating to them is referred to as M1 (in the case of the common/imposed contexts), and M2 (in the case of the voluntary/personal contexts). The data held relating to Literacy Skills is referred to as S.

Once outputs have been defined, it is necessary to specify the correspondences between them and the set (and subsets) of data defined in the curriculum model.

Figures 5.9 and 5.10 illustrate this in the form of Warnier diagrams of the Logical Data Bases dealing with the LCP and the SS respectively. A distinction is drawn in these diagrams between data and 'virtual' data, the latter being data derived, in this case arithmetically, from existing data in the system.

MALCM  
LCP  
+SO+SS

SUPERVISORS  
(S)

TUTOR(S)  
(T)

STUDENTS  
(SE)

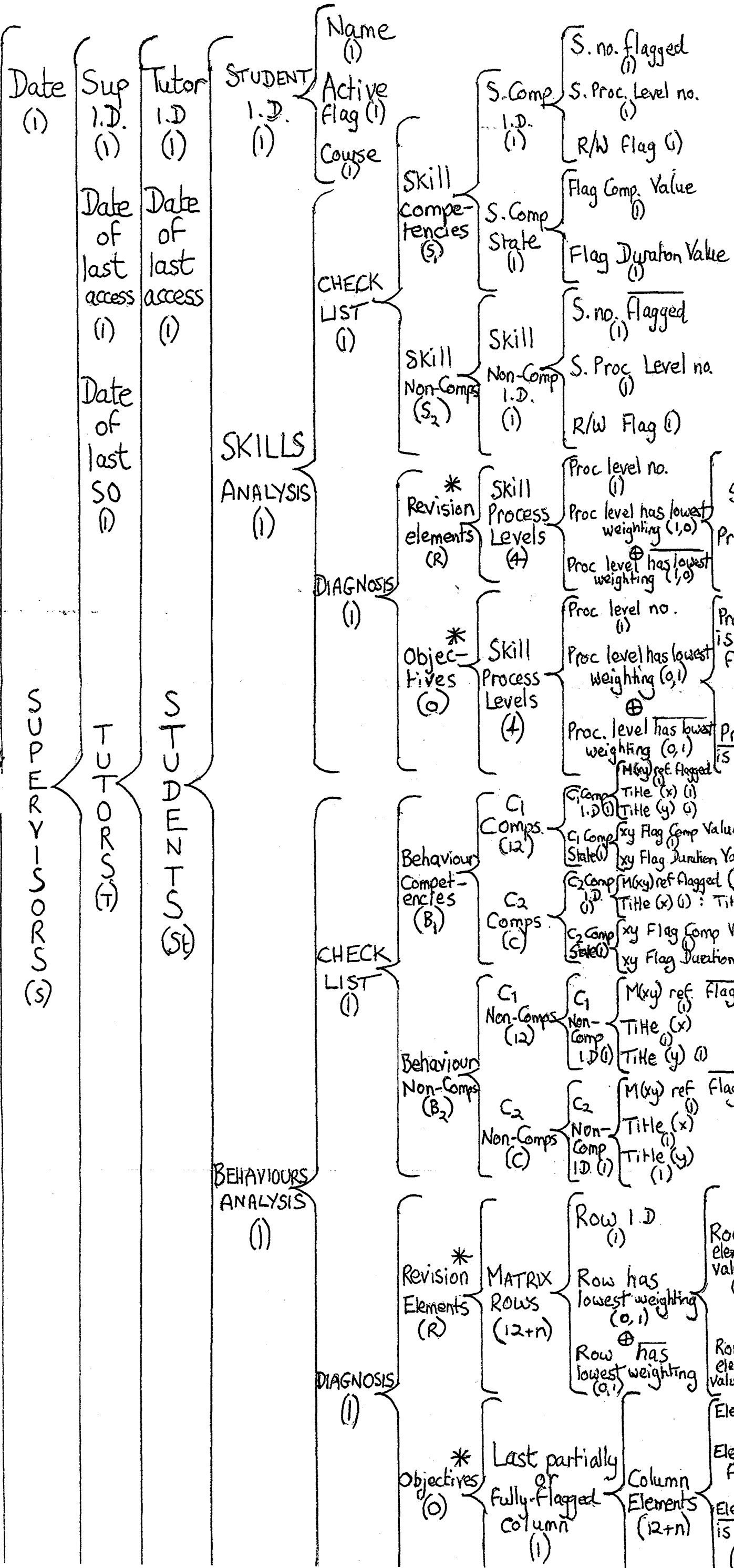


Fig. 5.9: L.D.B for Literacy Curriculum Profile

NB: Virtual Data is indicated by \* and is followed by derivation process.

NB: This LDB does not show generation of B objectives (ie. column objectives) for Behaviours - this is indicated on the check list by the title of the first unflagged column.

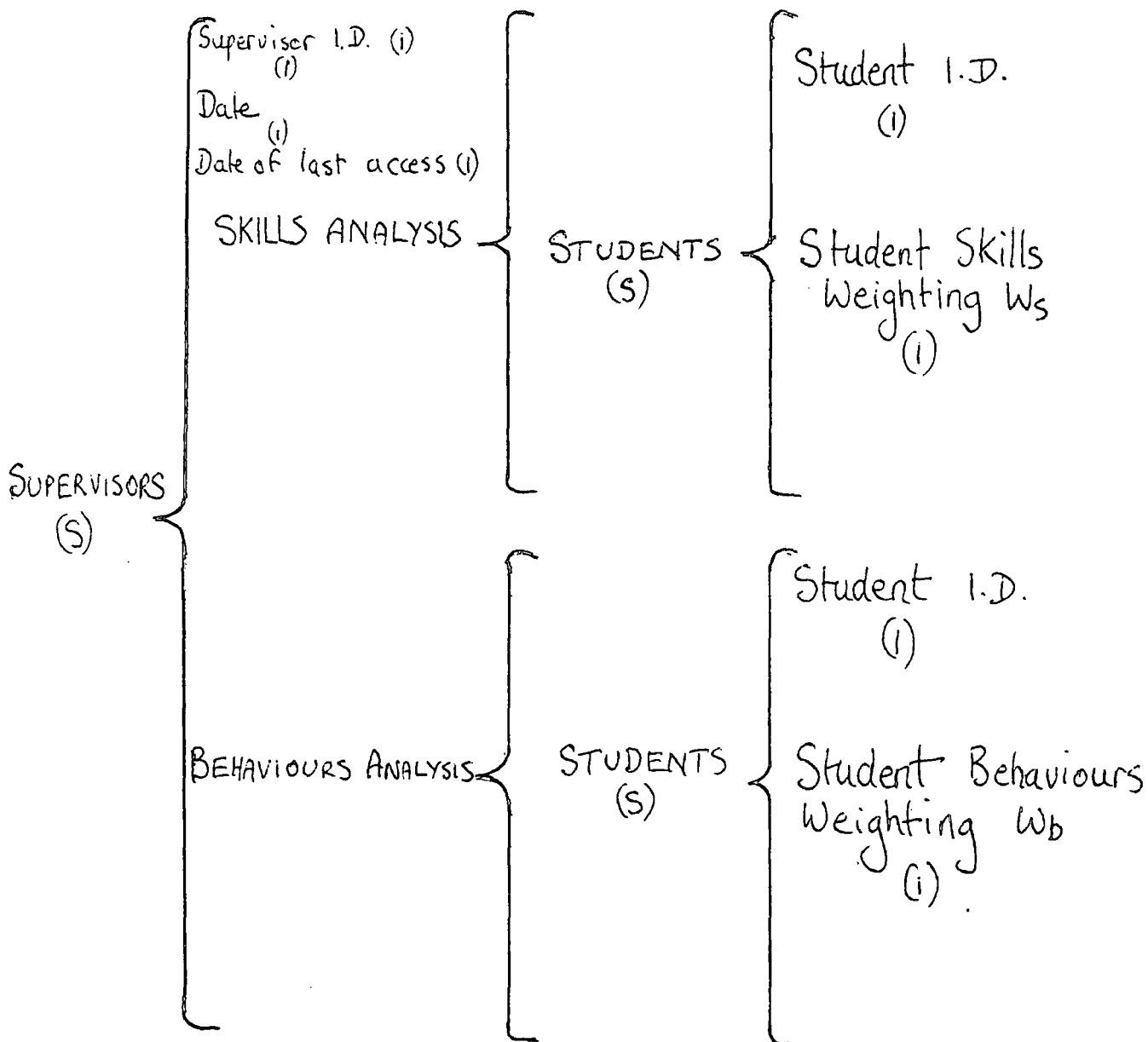


Fig. 5.10: L.D.B. for Supervisor Summary

NB: For method of calculating  $W_s$  and  $W_b$  refer to table 5.2.

### 5.5.3 Definition of primary and secondary files

Table 5.11 illustrates the operational logical files needed to hold the data thus specified. Files distinguished by a 'p' are primary files largely updated directly by interactive use of the system by users. Those distinguished by an 's' are secondary files which are updated solely by internal transactions from primary files. Files distinguished by an 'h' are also secondary files, and are used as 'housekeeping' files for keeping track of deletions in primary files.

(It may be noted that, despite the distinction made in Fig. 5.7 between the matrix holding common/imposed context behaviour data M1, and that dealing with voluntary/personal context data, M2, the two are in practice merged into one matrix, M, in file p7.)

### 5.5.4 System Operation sequence

With data defined and primary and secondary logical files specified, the next stage of development is to define the sequence of operations in producing outputs and updating.



OPERATIONAL LOGICAL FILES IN MALCM

<u>File</u>	<u>Fields</u>	<u>Transaction</u>	<u>Origin</u>
p1	Sup ID#	External	Interactive
	Sup.Name	External	Interactive
	Date of last SS	External	Interactive
p2	Tutor ID#	Internal	p2
	Tutor Name	External	Interactive
	Sup.ID#	Internal	p1
	Date of last LCP	External	Interactive
p3	Student ID#	External	Interactive
	Student name	External	Interactive
	Date of last LCP	External	Interactive
	# of last LCP	External	Interactive
	Tutor ID#	Internal	p2
	Course	External	Interactive
p5	Student ID#	Internal	p3
	Skill Rating flags	External	Interactive
p7	Student ID#	Internal	p3
	No. of V/P rows	External	Interactive
	M(x,y) rating	External	Interactive
	V/P Context titles	External	Interactive
s1	Student ID#	Internal	p3
	Skill Proc Level	Internal	p5
	Weighting		
s2	Student ID#	Internal	p3
	No. of V/P rows	Internal	p7
	M row weightings	Internal	p7
h1	No. deleted p3 records	Internal	h1
	Deleted record ID#s	External	Interactive
h2	No. deleted p2 records	Internal	h2
	Deleted record ID#s	External	Interactive

Table S.11

It should be noted that, unlike many commercial and industrial data processing operations, frequency of operations is not critical in MALCM. It is assumed, for

the sake of convenience, that tutors would access the system on a weekly basis and supervisors and organisers fortnightly. However this is not crucial to operation and no insistence is made in use that such precisely timed access should be practised. Fig. 5.12 is a Warnier diagram of the hypothetical sequence of operations for MALCM over a period of one fortnight. It indicates outputs and updating operations on specified files. The operations specified provide the basis for actual program modules for the system and these are more closely defined in Fig 5.13 where updating operations are indicated as one of the following:

'create' modules, in which new records are created in the specified file,

'delete' modules, which delete records from the specified logical file

'modify' modules, which update ratings or weightings in a given logical file

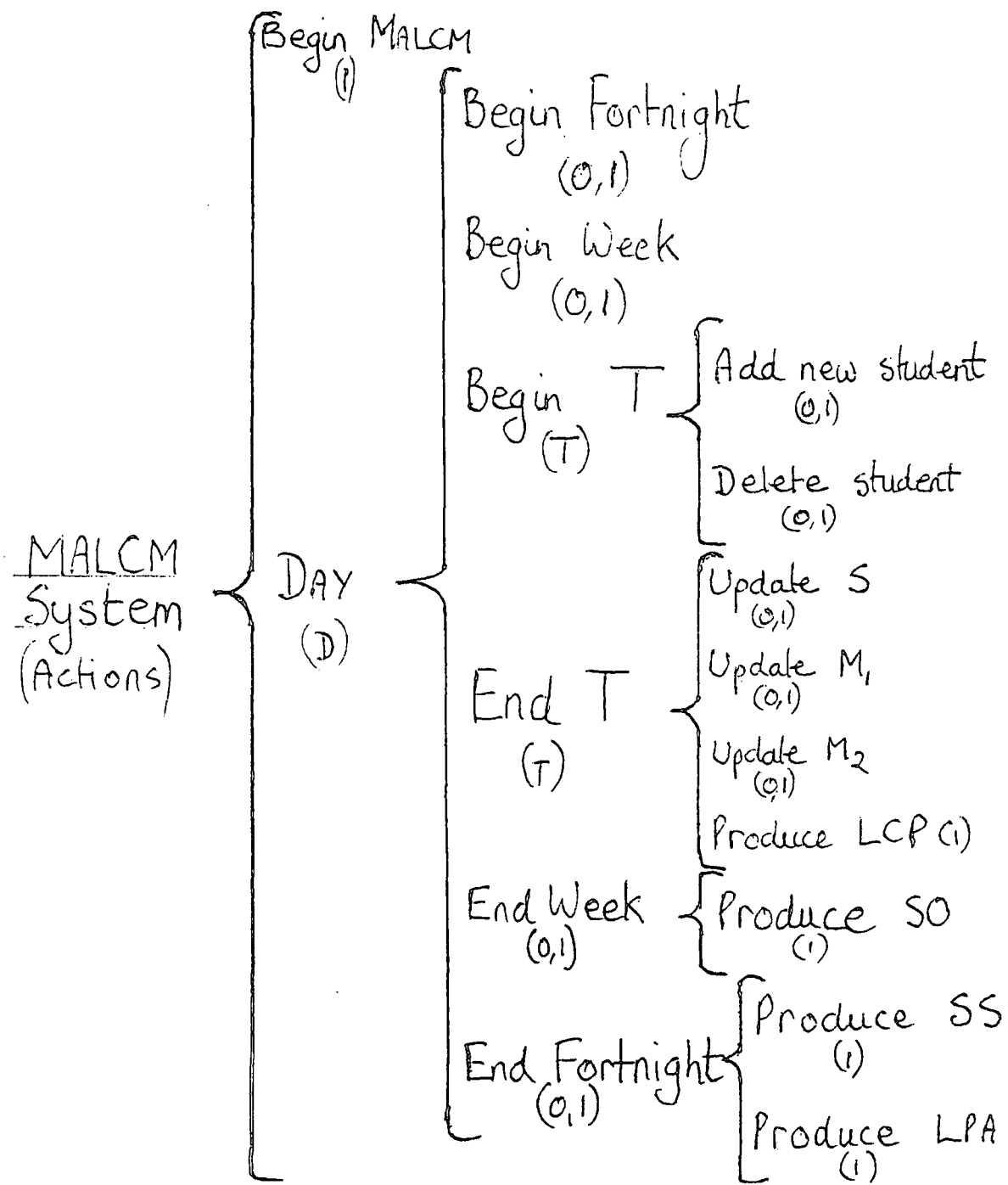
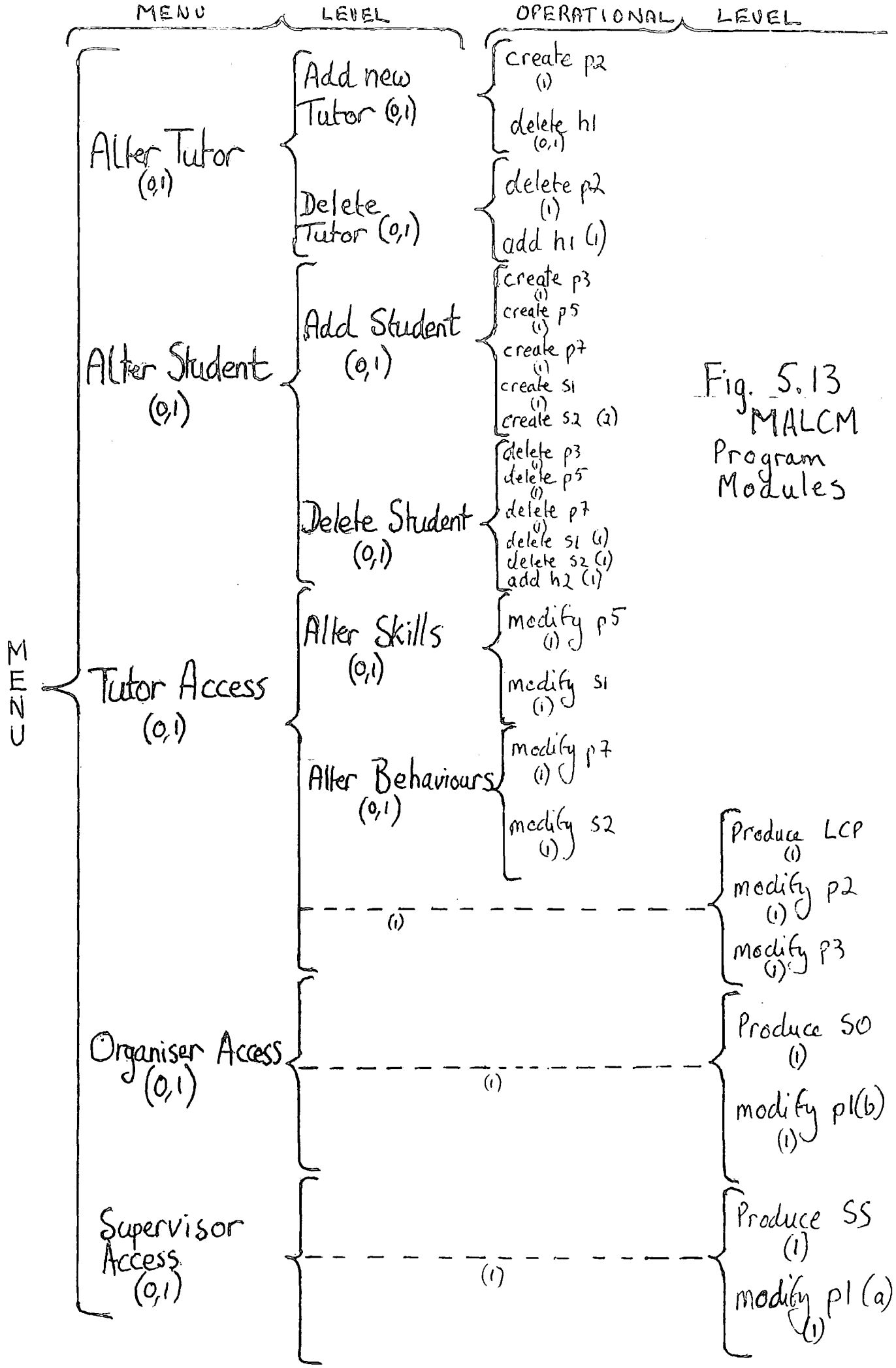


Fig 5.12: Hypothetical sequence of system operations over period of fortnight.

NB: ① T = Tutor/Student session frequency where  $T \Rightarrow 7$  days  
 ② SO = Organiser's Student Summary  
 ③ SS = Supervisor's Student Summary  
 ④ LPA = Learning Patterns Analysis  
 ⑤ LCP = Literacy Curriculum Profile



'add' modules which add the number of a deleted record to a housekeeping file

'produce' modules which print out system outputs (SS,LCP etc.)

These operation sequence modules indicate the program actions which will be required to produce the necessary updates and outputs. It is now possible at this stage to specify the sequence of operations within one program module, given the type of logical files which are known to be necessary for the system.

#### 5.5.5 Program module structure

It is possible now to define a standard program module structure for MALCM, since all program modules are viewed in the system as a series of operations on sets of data. Fig. 5.14 is a Warnier diagram of this structure. System variables used in the 'GET DATA' sequence are data input at the time of booting the actual system programs and consist of items not held on file, such as the current date. 'EXTERNAL TRANSACTIONS' refers to data input by users. 'EXTERNAL OUTPUT' is the printing of the system

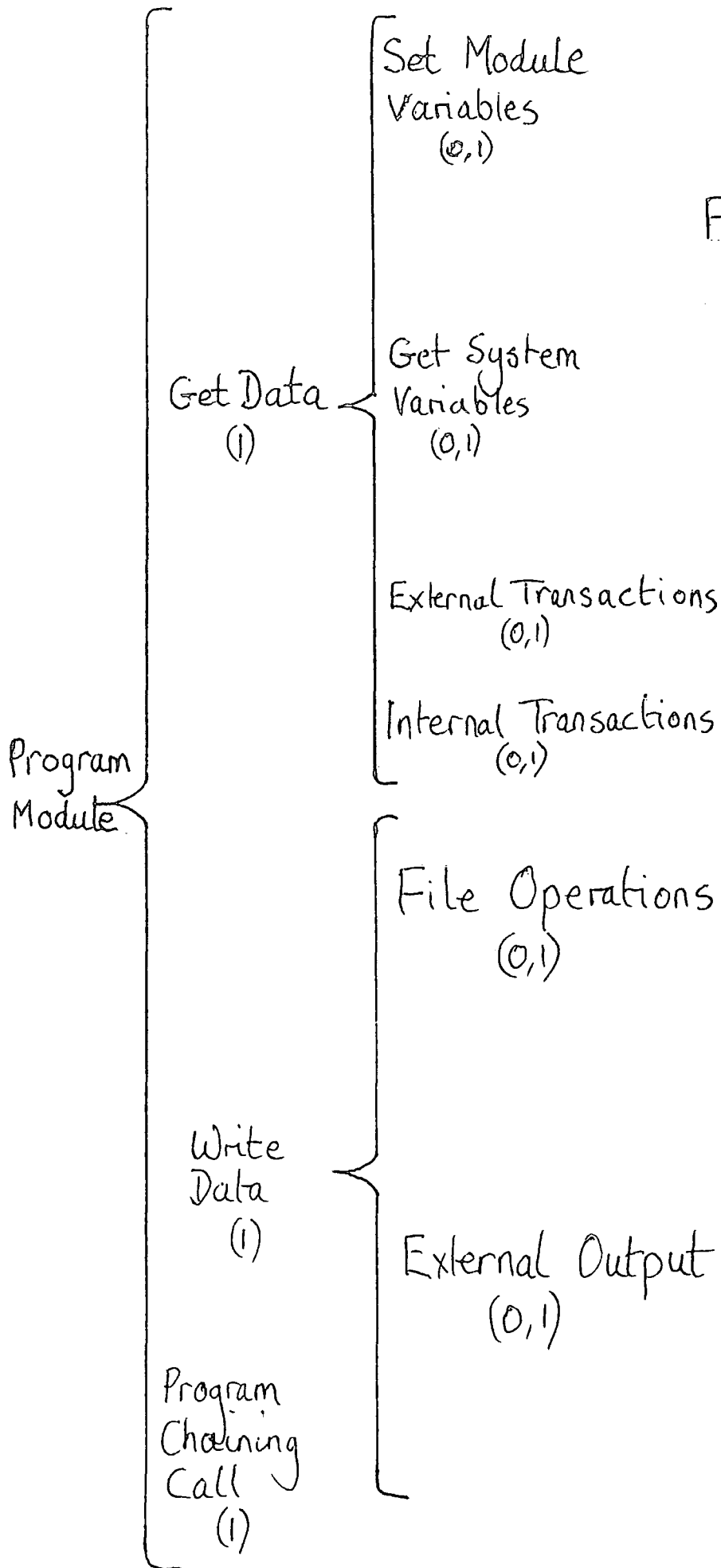


Fig. 5.14 : Program module structure

NB: All program modules can be defined in this way - as operations on data sets.

outputs. The program chaining call following the 'WRITE DATA' sequence is optional and allows for a module to chain another into main memory should the next module required not be part of the physical block of program code currently in main memory.

At this stage logical system design is virtually complete and the way lies clear for the process of coding the program modules. However one stage of development still remains as a link between system design and programming, and that is the definition of the structure of physical files and program variables to handle their contents. Since data to be held for the system must use the floppy disc media available, physical file structure is determined by the Disc Filing System (DFS) available on the BBC microcomputer. In the present case this is the standard Acorn DFS which has a fairly primitive file structure and handling facility. Basically, physical files must be planned as serial arrays of bytes, with different types of variables occupying a set number of bytes in a file. It is important therefore to specify carefully all program variables before planning physical file structure. Thus all the logical file fields detailed in Fig. 5.10 are allocated specified program variables which, in BBC BASIC, will be either String variables, real number variables or integer variables. In addition, it is possible to read and write single bytes to and from

physical files where necessary. Table 5.15 shows the corresponding variables used by the programs for file access and data handling.

### 5.6 System Program Design

With the system design completed, actual program coding can begin, following closely the program module structure already specified. In practice, to avoid unnecessary disc access, many of the program modules can be linked into one block of code, and the actual system when coded operates in eight program blocks. Table 5.16 shows the eight programs and the actual program design modules which incorporate them.

The actual listings for these nine program blocks are given in their BBC BASIC form in Appendix II , along with other information regarding program variables etc. Eight of the program blocks

(excluding PRIME) are held on one single-sided, 80 track, 5.25 " floppy disc, as are the nine data files specified earlier. It is intended that each supervisory group, (or New Beginnings group), would have its own disc and backup copies. Only the files for students on that particular group would be held on that one disc.



<u>File</u>	<u>Field</u>	<u>Variable</u>	<u>Type</u>
p1	Supervisor ID	SupID%	Integer
	Supervisor Name	SupName\$	String
	Date of last SS	Lastdate\$	String
p2	Tutor ID	TutID\$	String
	Tutor Name	Tutname\$	String
	Supervisor ID	SupID%	Integer
	Date of last LCP	Lastdate\$	String
p3	Student ID	StudID\$	String
	Student Name	Studname\$	String
	Date of last LCP	lastdate\$	String
	No. of last LCP	lastno%	Integer
	Course	Course\$	String
p5	Student ID	StudID%	Integer
	Skill ratings	SORarray\$(n)	String Array
p7	Student ID	StudID%	Integer
	No. of V/P Contexts	C2%	Integer
	Behaviour Ratings	BORarray\$(n)	String Array
	V/P Titles	SCarray\$(n)	String Array
s1	Student ID	StudID\$	String
	Skill Weightings	Sweighting%(n)	Int. Array
s2	Student ID	StudID\$	String
	No. of V/P Contexts	C2%	Integer
	Behaviour Weights.	Bweighting%(n)	Int. Array
	No. of 1st unflagged column	B%	Integer
h1&h2	No. of deletions	noofdels%	Integer

**Fig 5.15: Corresponding variables for file structure**

PHYSICAL PROGRAM BLOCKS IN RELATION TO PROGRAM DESIGN MODULES

<u>Program name</u>	<u>Modules incorporated</u>	
PRIME MENU MENU2		
SD01	createp2 deletep2 addh1 deleteh1	
SD02	createp3 createp5 createp7 creates1 creates2 addh2	deletep3 deletep5 deletep7 deletes1 deletes2
TUTOR-S	modifyp5 modifys1	User Help
TUTOR-B	modifyp7 modifys2	User Help
LCP	produceLCP modifyp2 modifyp3	
SS	produceSS modifyp1 ProduceLPA	

Fig. 5.16

The PRIME program is a system utility which simply sets up a series of blank student and tutor files prior to usage. When a new disc is to be created for a group, it is formatted to the Acorn DFS 80 track format after which all eight programs are copied onto it from a master disc by use of the ACORN DFS \*ENABLE and \*BACKUP commands. The PRIME program is then loaded into Main Memory. When

executed it will set up on the disc, blank versions of the nine data files for a given number of students. In test runs of the system, files for twenty students were used. This number is adequate for the size of groups for whom the MALCM system is intended. Once the BACKUP and PRIMEing functions have been carried out the disc is ready for use.

Two other functions are carried out by these programs that were not made apparent in the system design exercise. Firstly they provide access to the 'User Help' sequences which are structured into TUTOR-S and TUTOR-B. These function as a back-up or 'aide-memoire' to a user with regard to the concepts of Literacy Skills and Literacy Behaviours as defined in the curriculum model. The intention in including these was to provide users, principally Tutors, with access to explanations of concepts crucial to the working of the system at the precise moment when they needed to evaluate and employ such concepts. Since the computer can act, as we have seen, in a tutorial mode, advantage of the approach was taken. Part of the process of evaluation of the system would be to assess the usefulness of this feature as it is constituted and whether it was unnecessary or, conversely, inadequate and in need of expanding. The sequences appear as a series of informational pages and are not, save for the option of 'page' selection, interactive.

Secondly, the two MENU programs are included because the MALCM system is menu driven. That is, they offer users choices as to the particular function of the MALCM system they wish to use, be it input of ratings and/or requests for outputs, or access to 'User Help' sequences. The operation of the system menus is explained below.

### 5.7 System Program Operation

Features of the operation of the MALCM system at the level of the menu-driven user interface, following the sequence offered by the system menus, are as follows. The system is initially booted up by the action of the 'auto-boot' facility on the Acorn DFS. This, seen as the function of the group supervisor, is simply a matter of a double key press, 'Shift/Break'. At this stage, the MENU program will be loaded and run and will, having displayed the name of the group supervisor for the disc, request the supervisor to enter the current date which is then stored as a system variable for writing to data files. The VDU screen will then display the main MENU for the MALCM system (Fig 5.17):

MALCM SYSTEM - MAIN MENU  
PLEASE SELECT USING RED KEYS ONLY  
f1 - System Data Operations  
f2 - Tutor Access  
f3 - Supervisor Access

Fig 5.17

The three MAIN MENU options are used as follows (f1-3 refer to function keys to be pressed to obtain options):

f1 - System Data Operations: As indicated earlier this option is used to add or delete the names of tutors and students to the system records.

f2 - Tutor Access: This is the main mode of use for tutors and students, and is selected to set the system ready for tutors use at the beginning of a session. On selecting this option, by pressing f2, the TUTOR SEQUENCE menu will appear on the screen.

f3 - Supervisor Access: This option produces SS and LPA for the supervisor or organiser.

By selecting option f2, the group supervisor will ensure that the system is ready for tutors to use. The main Tutors menu should be displayed on the VDU screen as shown in Fig. 5.18 below.

#### MALCM SYSTEM - TUTORS SEQUENCE

Do you want to:

f1 - Give new ratings for skills ?

f2 - Give new ratings for behaviours ?

f3 - Produce a Literacy Curriculum Profile ?

f4 - None of these - escape ?

Please select using RED KEYS only

Fig. 5.18

Selections f1 and f2 in this menu involve giving new RATINGS for either Literacy Skills or Behaviours. Selecting the f1 key to enter new Skills rating(s) will call up a new display on the VDU screen, as shown in Fig. 5.19:

LITERACY SKILLS INFO.

Do you want to :

f1 - Have more info on literacy skills

f2 - Update the skill ratings of a student

SELECT USING RED KEYS ONLY

Fig. 5.19

Two choices are offered here: pressing f1 at this stage will give access to a 'User Help' sequence.

Pressing f2 at this stage accesses the sequence for updating ratings for Literacy Skills. The screen will alter and will display the request shown in Fig. 5.20 below:

LITERACY SKILLS - MALCM UPDATE SEQUENCE

Please enter the ID number of the student. If this is not known, please enter the name of the student as it appears on the last LCP.

Then press RETURN

Fig. 5.20

Entering the ID number, (or name), will display the layout of Literacy Skills shown in Fig. 5.21 on the following page:

Select Skill with Space Bar & RETURN

- 1 - Sound input disc. skills
- 2 - Vis input disc. skills
- 3 - Motor Control Abilities
- 4 - Single Letter Recognition
- 5 - Letter Group Recognition
- 6 - Sub-array recognition
- 7 - Array Recognition
- 8 - Sub-array Phon. Translation
- 9 - Array Phon. Translation
- 10 - Array Articulation
- 11 - Sub-word Phon. Translation
- 12 - Word Phon. Translation
- 13 - Spelling Pattern Checking
- 14 - Word Articulation
- 15 - Lexical Access/Retrieval
- 16 - Use of context evidence

Press f1 to put these ratings on file

Fig. 5.21

The Literacy Skills are shown in different colour groups in this display, according to the Process Level into which they are classified. Opposite Skill 1, a flashing green arrow is seen.

To select the Skill required for rating the SPACE BAR at the bottom of the computer keyboard is pressed. At each press, the flashing arrow will move down the screen to the next Skill, and will display the colour of the Process level group it is currently pointing to. Once the arrow has reached Skill 16, the next press of the SPACE BAR will return it to a position opposite Skill 1 and so on. Once the flashing arrow is



opposite the required skill, a press of the RETURN key will change the Screen display once more to that shown in Fig. 5.22.

```
Skill selected is  
1 - Sound input skills  
Please enter new rating for student as  
1 to 4  
NB 1 - Beginning only  
2 - Starting to make progress  
3 - Quite good  
4 - Perfectly Competent  
Enter rating and press RETURN
```

Fig. 5.22

Fig. 5.22 shows the display as if Skill 1 had been selected for a rating. In fact the second line of this display will show whichever skill has been selected. The rating is then entered.

The screen will display as in Fig. 5.19 again, except that that the rating for the skill just selected is now displayed in white opposite the name of the skill. Further rating and selection is possible. Ratings can be sent to file f1 key.

After the f1 key has been pressed and the new Literacy Skills ratings stored in the system, the VDU will, after a few seconds, display the message:

**Student skills ratings now updated**

**Press any key to return to main menu.**

Pressing any key will enable a return to a display of the Main Tutors Menu, as shown in Fig. 5.18. On selecting key f2 in the Tutor's main menu, the screen display will alter to that shown in Fig. 5.23 on the following page:

MALCM SYSTEM - TUTORS ACCESS  
LITERACY BEHAVIOURS CHECKLIST

Do you want to:

- f1 - Have more information on Literacy  
Behaviours ?
- f2 - Update your student's ratings for  
literacy Behaviours ?
- f3 - Neither. Escape to tutors' menu ?

Select using red keys only

Fig 5.23

Selecting key f1 here gives access to another USER HELP sequence, similar to that provided for Literacy Skills.

Selecting key f3 at this stage permits the user to avoid any further work on Literacy Behaviours. It is provided in case a user has made a wrong selection at the Tutor's Main Menu stage. Pressing it will simply return the user to the Tutor's Main Menu.

Selecting key f2 at this stage take the user into the sequence which permits both updating of behaviour ratings and also for the addition of new V/P contexts to the student's files. Upon pressing key f2 the screen display will again change as shown in Fig. 5.24.

LITERACY BEHAVIOURS - TUTORS UPDATE

Please enter the ID number of the student. If this is not known, please enter the name of the student as it appears on the last LCP.  
Then press RETURN

Fig. 5.24

Once the ID number, (or name), is entered, the VDU will display another Menu, shown in Fig. 5.25 following:

LITERACY BEHAVIOURS - TUTORS UPDATE

Do you want to:

Add new Voluntary/Personal  
Contexts for your student ?

f1 - YES

f2 - NO

Please select using RED KEYS only

Fig. 5.25

This menu offers the option of adding to the list of Voluntary/Personal Social contexts held for a student. Selecting f1 will call up the display in Fig. 5.26. Otherwise the system will proceed to the Behaviours rating sequence shown in Fig. 5.27 overleaf:

VOLUNTARY/PERSONAL CONTEXTS UPDATE

As yet your student has no  
Voluntary/Personal contexts  
added to his file

Press any key to go on

Fig. 5.26

(If some V/P contexts have already been entered for the student, then the above display will be slightly different. It will list those V/P contexts already ascribed, for the tutor's convenience.) As indicated, pressing any key to continue would change the display to that indicated in Fig. 5.27 overleaf:

VOLUNTARY/PERSONAL CONTEXTS UPDATE

You can add up to a limit of 20  
V/P contexts for your student.

This means you have 20 left.  
Note that you must restrict the title  
of new v/p contexts to 30 characters  
including spaces.

```
*****
*                                     *
* ?                                 *
*                                     *
*****
```

Fig. 5.27

(Note that the figure represented by 20 in this display will vary according to the number of V/P contexts already filed for the student.)

New V/P contexts can be entered up the limit of 20. As they are typed they will appear in the box on the screen and the tutor can edit them as required. Entering 'END' terminates the sequence and the new V/P contexts are filed. Following this, (or instead of it, if the previous option is declined), the display shown in Fig 5.28 is given.

## Chapter Five

### LITERACY BEHAVIOURS - TUTORS UPDATE

Do you want to:

Give new literacy behaviour  
ratings for your student ?

f1 - YES

f2 - NO

Please select option using RED KEYS only

Fig. 5.28

Selecting f1 obviously continues with the sequence, whereas selection of f2 will return the user to the Tutors Main Menu. This option is included for those users who have wished to add new V/P contexts but do not wish to update ratings for behaviours.

Selection of f1 will alter the display to an information page which is included to remind users of the 1-4 scale of rating. It also includes information on the method of entering ratings for Literacy Behaviours.

The number of possible ratings that can be given in the MALCM system for Literacy Behaviours is obviously much greater than can be assigned to Literacy Skills. While there are only 16 of the latter recognised, the number of possible Behaviour categories is the number



of Expected Responses multiplied by the number of Social Contexts (Common + V/P) in which they can occur, in other words,  $6 \times 32$  or 192. Rather than attempting to list all these on the small VDU screen, the MALCM system asks the tutor/user to select the category of Literacy Behaviour by identifying its Expected Response category and its Social Context (Common or V/P).

To make this easier for the user, the screen display shown in Fig. 5.29 overleaf is used:

```

*****
*                                     *
* Personal/Individual               *
* Relationships    (1)              *
*                                     *
*****

Social contexts  f1

Select items using f1/f2 keys
Press RETURN to give new rating
Press f3 when finished

*****
Rating

*****
*                                     *
* Comprehend Simple                 *
* instruction(s)    (1)             *
*                                     *
*****

Expected reactions  f2

```

Fig. 5.29

Once the display shown in Fig.5.28 is on the screen, the tutor/user can select the two defining categories of the Literacy Behaviour he is updating by simply pressing either the f1 or f2 keys. Pressing f1 will change the Social Context displayed in the top rectangle. Each time the f1 key is pressed the Context displayed will change, from 1 to 2, from 2 to 3 and so on. If any V/P contexts

are held for the student in question, they will be displayed, in purple script, immediately following Common Social Context no.12 (The Law).

Similarly, Expected Responses displayed in the bottom rectangle can be changed by pressing the f2 key. Thus pressing it once will change from E.R. number 1 to E.R. number two and so forth. Once the end of a list of Contexts or Responses has been reached, a further key press will return the display in either rectangle to the first item in the list.

Once the tutor has decided on the Literacy Behaviour to be updated therefore, he/she will use the f1/f2 keys until the desired Social Context and Expected Response are correctly displayed. The rating for the Literacy Behaviour is then updated by pressing the RETURN key, at which a display similar to that used in the Literacy Skills update sequence will be shown (see Fig.5.30)

LITERACY BEHAVIOURS RATINGS UPDATE

Behaviour selected is the ability to:  
Comprehend Simple Instructions (1)

In the context of:  
Personal/Individual Relationships (1)

Please enter a rating of 1-4 on the scale

- 1 - Beginning only
- 2 - Starting to make progress
- 3 - Quite good
- 4 - Perfectly Competent

Enter rating and press RETURN

Fig. 5.30

After the rating is entered, the screen display will immediately revert to that shown in Fig. 28, with the difference that the newly assigned rating will be displayed in the square labelled 'Rating' on the right hand side of the screen.

The Tutor/user can change as many ratings as he/she wishes. Any errors can be rectified simply assigning a new rating. Newly assigned ratings can be filed by pressing the f3 key. The user is then given the option shown in Fig. 5.31

Do you want to:

- f1 - Give new ratings for skills ?
- f2 - Print out a literacy curriculum

profile

Please select using RED KEYS only

Fig. S.31

This last display in the Literacy Behaviours Updating Sequence simply offers the user a chance to make further changes to Literacy Skills ratings or to go straight on to producing a Literacy Curriculum Profile (LCP) for the student. If f1 is selected then the Skill Updating sequence already described will be entered.

If f2 is selected however, the computer will go on to produce an LCP for the student in question, without further need for intervention from the Tutor/User.

It is possible to make the MALCM system produce an LCP at two different points:

- 1 - At the end of the Literacy Behaviours Update Sequence
- 2 - Directly from the Main Tutors Menu

If it is produced from the Literacy Behaviours Update sequence, then a simple keypress as shown in Fig. 5.30 will initiate the printing. If it is produced from the Main Tutors Menu, then pressing f3, as shown in Fig. 5.18 will start the sequence: in this case however, the computer will first ask the user to type in the Student's ID number. Once the ID number has been typed in, the RETURN key should be pressed. This will initiate the printing process.

Following the printing process, the computer will return to the Main Tutor Menu, ready for other users. Generally speaking, producing the LCP will be the last use of the MALCM system for a tutor in a particular session.

This operating description of the system menus concludes the overall description of the design and workings of the MALCM CBL System.

### 5.8 System Testing

The system was tested over a period of several weeks. The testing process consisted of entering a student's name using the SDO modules and then gradually entering new data for that student, first for skills, then for behaviours and V/P contexts. After this period the system

## Chapter Five

appeared to function without noticeable bugs. However, no test run sequence can ever reveal all potential bugs in a complex system, and it was anticipated that actual usage in the ABE Unit would reveal further deficiencies. For this reason, a problem report form was designed (Fig.5.31) copies of which were kept for users to fill out at need in the vicinity of the hardware.

At this stage the system was considered ready for introduction to its working context. Therefore the next chapter details the processes of actual implementation in the New College ABE Unit.

### PART THREE: IMPLEMENTATION AND EVALUATION

Chapter Six - Implementing the MALCM system in context

Chapter Seven - Implementing The MALCM System:  
The Case Study

Chapter Eight - The Case Study: Evaluation

Chapter Nine - The Case Study: Conclusions



## CHAPTER SIX - IMPLEMENTING THE MALCM SYSTEM IN CONTEXT

### 6.1 Introduction

The process of implementing the MALCM CBL System in the working context for which it is intended needs to take account of several factors. These can be divided into two aspects of the working context which are likely to affect the implementation:

1. Physical and logistical factors.
2. Human factors.

This chapter examines these factors in relation to the ABE Unit at the time of implementation and then describes a proposed implementation procedure to be used which tries to account for the factors already described.

### 6.2 Implementation - Physical and Logistical factors

As has been indicated earlier, the hardware to be used in implementing the MALCM system is situated permanently in the main teaching room of the ABE Unit at New College.

Since all the groups to be involved in using the system used this teaching room, arranging access to the hardware presented no problems.

The intention in the system design was that each supervisory group should have its own disc which contains data on the students in that group only, up to a maximum of twenty students. It is important that the group supervisor or teacher should have ready access to this disc before starting a session, in order to produce supervisor outputs and to prepare the system for use by tutors and students. Therefore a separate disc storage box was set aside, with sections labelled for each group using the system. This box would be kept in the teaching room in the vicinity of the hardware and in it working copies of each group's discs would be held. Although lockable, the box would left open during the time when the ABE Unit was functioning. These working copies would be in regular weekly use.

Although floppy discs are fairly reliable in use, over a long period of time they can be easily damaged, corrupted or even lost. For this reason, backup copies of all working discs would be held in an office separate from the teaching room where the system would be used. It is important, when running a system which holds not only programs but regularly updated data on disc, to ensure

that the backing up processes mirror the frequency of updating. Therefore backup copies of group discs would be updated every week from working copies. This process would be the responsibility of the organiser or full-time ABE Unit staff. The back up copies would be kept securely and would not be used as working copies. Rather, new working copies would be made from them when necessary.

Similarly, master copies of the programs on group discs would be held in the same office, to be only used for producing working copies when necessary.

Supervisors and tutors would be encouraged to keep all hard copy outputs from the system, ie: LCP's, SS/LPA'S, in an accessible file for three reasons: firstly because the idea of the systems is that these documents be kept anyway, secondly to assist in system evaluation and thirdly, to be used, if necessary, in producing reconstituted files when disc corruption or damage does occur.

Apart from problems with storage media, it is necessary to anticipate possible difficulties with hardware. These may arise from genuine hardware failure, though this is fairly rare with the equipment used, or from misuse and abuse of the system. There is also the possibility that simple confusion might lead a 'naive' user to believe that

breakdown has occurred when, in fact, nothing whatsoever is wrong and ignorance of correct usage is the problem. For this reason, as indicated earlier, 'Problem Report' forms were designed to be left in the immediate proximity of the hardware for completion by users in cases of difficulty. The use of such forms can make life considerably easier for those who have to remedy any problems or faults, a diagnosis based on accurate description of a problem being much easier than no information at all, beyond the fact that 'something' is wrong.

### 6.3 Implementation - Human Factors

The introduction of a complex computer system into a working context must take account not only of logistical factors but also of the people who are intended to use it. The effect of the introduction of computers into society in general is the subject of a growing body of literature (Houser 1977), and several writers have concentrated on the issue of the human aspects of the introduction of computing into education, (Leiblum, 1977, Seidel & Wagner, 1981). In particular, in a useful and original approach, Blumenfeld et al. (1978), have employed an ethnographic parallel to highlight some of the problems involved in the process, using the analogy of the introduction of steel

axeheads to a stone age tribal culture in Australia in the early part of this century. They emphasise two major factors which can affect the process of innovation in education:

1. the techniques used by the innovator
2. the behaviour of the recipients towards proposed innovation

and under these two heads go on to detail six 'primary process variables' affecting direct change:

- 1(a) the methods of communication used by the innovator
- 1(b) the type of participation the innovator obtains from the recipients
- 1(c) the manner in which the innovator utilises local culture and adapts the innovation to existing cultural patterns
- 2(a) whether or not the recipients have an initial felt need

2(b) whether the recipients perceive any practical benefit in adopting change

2(c) whether the recipients traditional leaders are brought into the planning and implementation of the process.

The proposed implementation procedure for the MALCM system will attempt to reflect some of these concerns in its approach. Firstly, it will be useful to consider in some detail the 'recipients' of the innovation, particularly in those respects that will affect the innovation of the MALCM System, before posing and answering the questions implied in 2 a, b and c. Then a model for implementation will be set out with the points covered in 1 a, b and c above taken into account in the design.

#### 6.3.1 The 'cultural' pattern of the ABE Unit

This reflects the essentially 'voluntary' nature of much of its work. In the evening literacy groups, tutoring of students is carried out in an atmosphere of 'working together', with a distinct playing down of any authoritarian relationship between tutor and student. Supervisors encourage sociable contacts between

student/tutor pairs during the sessions and no attempt is made to enforce a working pattern on a group in terms of strict tutoring times or styles. Supervisors assume a helping and advisory role to tutors and students, but avoid prescriptive guidance as to the style or content of tuition. Even disruptive behaviour, which happens on rare occasions, is dealt with in a non-confrontational, 'adult' manner, with perpetrators, (whether tutors or students), eased out of a group in a friendly and sympathetic manner.

This style of conducting sessions is the result of a deliberate decision and influences the relationship between tutors, students and supervisors. Communication is at all times extremely informal and supervisors will not usually intervene in tuition unless requested or unless that tuition is so badly or disruptively carried out that no mediation would detrimentally affect the rest of the group. Nonetheless, the supervisor is viewed by the rest of the group as the major provider of advice and as a point of reference for administrative problems, (such as payment of travelling expenses etc.) Although tutors and students will have met, and talked to, the organiser, their supervisor remains their major contact with the Unit and the scheme as a whole. Communication between supervisor and tutor outside of the Unit and the College is by no means unusual.

Although supervisors are part-time paid staff, as opposed to volunteers, there is a common practice of appointing them from the ranks of volunteers, on the basis of apparent competency and reliability. Thus, while being experienced in the work of the unit, they bring with them no formal qualification for the job. This reflects the informal and voluntary nature of the Unit, staffed largely with individuals with a common core of experience but with no professional or technical training to provide a common frame of reference in communication or curriculum development.

The organiser, as already indicated, will be known to all students and tutors, but communication here will be infrequent or non-existent, save for social niceties. However, communication between the organiser and supervisors is frequent, the former providing advice on administrative and logistical matters such as availability of accommodation. As with supervisor and tutor however, there is little direct communication prescribing or requesting guidelines on tuition style or content. The style of communication will be largely informal though this is more likely to be a by product of professional working relationships than a result of conscious policy decision as is the case with supervisor and tutor/student pairs.



Occasionally, the organiser will call a formal meeting of supervisors to discuss a particular issue or issues, but this is not a regular occurrence. Such meetings illustrate well the degree to which supervisors are unused to formal communications in the Unit, in that it has proved difficult for the organiser to steer discussion in the meetings from anecdotal exchanges of experiences in group supervision to formal discussion of the supposed issues of the meeting. Supervisors have often seemed to be uncomfortable in this context of more formal approaches to communication.

The relationship between the author of this study and the rest of the individuals involved needs to be explained since it may well affect the process of system implementation. The author had, at one time, established the ABE Unit and its courses and had worked in the capacity of organiser, but, by the time of the study, had moved into other fields of work in New College. While still officially a member of full-time staff in the ABE Unit and, in fact, its nominal head, he had handed all of the responsibilities of organiser to a colleague. Thus the author was known to all supervisors and several tutors and, to some extent, felt conscious of still being regarded as the 'head' of the Unit. There was therefore a degree of recognition of 'status' attached to the author,

though before the start of this study and the implementation of the system, there had been a hiatus in professional contact between supervisors, tutors and students and the author. The relationship between the author and the organiser was closer, in that both shared the same office and were full-time members of staff of the college. The Organiser occasionally referred to the author for advice on running the Unit in the administrative context. Before system implementation however, there had been some discussion between the author and the organiser regarding the style and planning of teaching and training in the ABE Unit, but little with respect to content or curriculum.

At the time of system implementation, there was a very low level of experience or interest in the use of computing in the Unit generally. Although the hardware to be used had been in situ for some 18 months before this time, its use had been largely restricted to the author when teaching in the Unit. More recently, the organiser had started to learn the use of the computer as a word processor, using the VIEW word processing package for the BBC micro. As indicated earlier, some CAL software, mostly of the tutorial or D&P style, was available for use in the Unit. It had not been popular, due to its somewhat trivial and childish approach and was mostly unused. With one exception, supervisors had studiously avoided using the

computer in their work in any mode, and, indeed, tended to view it with a degree of fear or suspicion. That exception was a supervisor who possessed a home computer, (of a different make), and who was prepared to experiment in using some of the CAL software available in the unit, though in a random and unstructured way. (The reactions and responses of Unit staff to the computer are dealt with in more detail in the part of the study dealing with evaluation of the MALCM System. This brief summary is based on observation and on the recorded utterances of staff provided in Appendix III).

It is interesting to note that a small but significant number of students on the scheme had some experience in using micro-computers, whether from learning with and about them at school recently, or by having them available at home. These students showed considerable interest in using the computer in the Unit and were occasionally a source of frustration or mild embarrassment to tutors and supervisors.

#### 6.4 Implementation - the recipients

The 'recipients' of this innovation in the Unit are all those mentioned in the brief 'cultural' description above. What then are the likely facts relating them to the points 2a to 2c above ?

##### 6.4.1. Initial felt need of recipients

Superficially this was not particularly noticeable among many of the recipients mentioned above. It should be remembered that, in bringing in the MALCM system to the Unit, the prime aim of innovation was to introduce a structured curricular approach to teaching by using the computer as a tool. Thus the primary objective was the former, the computer being a means to an end. However, Unit staff, not being, on the whole, conversant with styles and concepts of CBL might be likely to perceive the innovation as an exercise primarily designed to introduce the computer rather than the computer being a means to an end. In that sense, they certainly did not feel a need to use a computer. In fact, to the contrary, they had displayed suspicion and mild anxiety towards it during the

months that it had been in place in the Unit, though no attempt had been made to force or even encourage staff towards using it.

The question of whether staff (and students), felt a need to adopt a more structured curricular approach in their work is difficult to assess. Though it is the author's contention, through experience of teaching in the Unit and through observation of the teaching and learning of others, that the effectiveness of the unit suffered through the lack of such an approach, the actual 'felt' needs of other staff may not have been so concisely expressed. There was certainly a perceptible feeling of uncertainty and lack of direction among tutors regarding their knowledge of what to teach and when to teach it, but this was usually conceptualised by them as a personal failing by the tutors. Supervisors could usually provide help by referring to their own experience over several years work in the Unit, but the advice was largely based on intuitive approaches to tuition rather than explicit understanding of the processes involved in Literacy. Nonetheless, supervisors were fairly satisfied with the situation and certainly **expressed** no felt need for the approach underlying the MALCM system. Given the informal style of running the unit which also characterised the communication within it, this is perhaps not surprising.

The organiser, when questioned about the need for the structured curriculum approach was generally favourable, and confessed to working to a personal concept of literacy which, however, had not been formally disseminated or communicated to other staff of the Unit.

The only area where staff had expressed a need for more formal concepts of literacy was indirectly, in relation to resource use. The Unit's fairly considerable stock of teaching resources was, it was felt by all concerned, underused, the reason being that no-one was quite sure what many of them were intended to be used for. In this sense, Unit staff did feel a need for a common concept of literacy teaching and learning in order to describe the purpose of resources and teaching/learning materials efficiently and meaningfully for all potential users.

### 6.4.2. Perception of practical benefit among recipients

Until the potential users of the MALCM system can be made to understand the purposes and workings of the system, they cannot be in a position to perceive the benefits it may bring them, in practice, in their work. That such a perception should arrive during the course of

implementation would obviously enhance the likelihood of its success, but cannot be expected without some form of introduction or training which, therefore, should be incorporated into the implementation process. The potential usefulness of the system and the validity of its curriculum model will be reflected by the degree to which the Unit staff and students see it as a benefit to their work. This is an issue which cannot be completely addressed until the business of evaluation of the system in context is undertaken.

#### 6.4.3. Traditional leaders in the planning and implementation process

Unlike larger educational organisations of the kind referred to generically by Blumenfeld (ibid.), the ABE Unit has no divergence between an established hierarchy and actual traditional leadership. That is, the tutors (and perhaps their students) will see their supervisor as being the 'leader', while the supervisors will look to the organiser for leadership. If point 2(c) made above is to carry any weight in this implementation procedure, then these two levels must be involved in the implementation at least. In particular, since it is important that the MALCM system should function at individual tutor level, the

participation of supervisors is crucial, since the organiser is physically incapable of overseeing use of the system for each group.

To an extent, both supervisors and the organiser have been excluded from the planning process, in the sense that the curriculum model is an individual development produced by the author for the purposes of this study. The Unit staff were not consulted about this or, indeed, about the nature of the MALCM system itself, and it may prove interesting, in evaluating the system, to speculate as to the contribution this factor may make to either its relative failure or success.

In the first stages of implementation therefore, it would seem sensible to ensure that firstly, the organiser and, working down the 'hierarchy' of leadership, the supervisors should be introduced to the system and then be involved in introducing it to those working at the 'level' immediately below them. Despite the residue of authority that might attach to the author from having previously run the unit, an attempt at introducing a system organised and run by this one person alone might well have the effect of polarising any possible dislike or rejection of the system around an individual who might come to symbolise an



unwelcome innovation. If implementation is seen as more communal, unit exercise, then acceptance might be more willingly achieved.

## 6.5 Implementation - the innovator

Points 1(a) to 1(c) quoted from Blumenfeld indicate crucial areas from which success or failure in system implementation might spring. It is therefore necessary to outline approaches to implementation which will attempt to take into account these factors.

### 6.5.1 Methods of communication

It had already been noted that informal styles of communication characterise the 'culture' of the ABE Unit. In addition, because the Unit is small, with few staff, a formal approach to communicating is perhaps less necessary than it might be in a large organisation where the efficiency of communication depends on formal modes and channels. Again, the small size of the unit makes the business of building 'personal' relationships easier.

Thus the preferred mode of communication in implementing the MALCM system will be informal and verbal, rather than written, in most cases. Any planning and involvement of staff in the process can be carried out verbally and often without formal confirmation procedures. However it is important to realise that informality of communication and planning between individuals can at times lead to a lack of urgency and commitment. It would seem useful therefore to ensure that some of the communication and planning in implementing the system takes place on a more formally structured group basis, so that decisions can be perceived as being communal and carrying a degree of responsibility and commitment for those involved in implementing them.

### 6.5.2 Participation from recipients

Obviously participation from the recipients in the case of this innovation is absolutely crucial - the system cannot work without regular inputs at the tutor/student level. The type of participation needed however is positive. Unwilling and forced participation will be self-defeating for all concerned. Similarly, passive participation, with the recipients obeying instructions and simply using the system as requested, however willingly, will not contribute to the process of evaluation as much as an active participation, with recipients concerned to offer

suggestions for change and refinement to the system and, perhaps, sufficiently inventive to experiment with different possible ways of using it.

### 6.5.3 Utilising existing cultural patterns

The style of communication and the use of existing leadership patterns to be used in implementation have been outlined above and demonstrate an intention to follow the 'culture' of the Unit.

## 6.6 Implementation Procedure

Bearing in mind the considerations covered above, the implementation procedure will follow certain stages as detailed below:

### 6.6.1 Produce System User Documentation

However successful training and informal communication may be in the implementation, users of the system will require detailed written references and instructions to back these up. These will be available in the form of a MALCM System

User Guide. This will provide step by step instructions in the actual usage of the system, a guide to interpreting system outputs and an explanation of the MALCM curriculum model. The text of the user guide is included in Appendix I.

#### 6.6.2 Introduce System to Organiser

Following the 'leadership' structure of the ABE Unit, the system will be introduced first to the Organiser. 'Introduction' in this context will involve an initial access to a copy of the User Guide, an informal discussion of the system and its curriculum model, which will be taped for later evaluation purposes, and a short course of training in the use of the system which may also be taped. A dummy file of fictitious students on a sample disc will be prepared for training purposes.

#### 6.6.3 Introduce System to Supervisors

This stage will follow the same pattern as the Organiser Introduction and the sessions will also be taped for later evaluation.

#### 6.6.4 Selection of suitable first users

Several tutor/student pairs from across all supervisory groups will be selected as the first group of users of the system. Initially, perhaps, two user pairs from each group may be picked. Selection will be carried out in consultation with supervisors and the organiser, in a semi-formal meeting.

#### 6.6.5 Introduce System to Selected Tutors

This introduction will follow the same pattern as that for the organiser and supervisors, with the proviso that the depth and range of explanation will be limited to that required by the tutor, excluding supervisor and organiser access and interpretation. This introduction will be carried out by the author, but in the context of the supervisory group. The author will encourage supervisors participation at this stage of introduction and training, partially for reasons, outlined above, of involving natural leaders, and partially to maintain and re-enforce supervisor interest and understanding. All participating will be issued with a copy of the relevant parts of the user guide. Where possible, such introductory sessions will be taped.

#### 6.6.6 Assist supervisors in SDO functions for first users

First users will need to be entered into the system via SDO operations and this will be the first real task of supervisors in using the system. The author and, hopefully, the organiser, will be available in assisting at this stage.

#### 6.6.7 Guide First Users in System Use

First users will be asked to use the system for a specified period of time, probably something like ten weeks given the average college autumn term of 13-14 weeks. During this time organiser and supervisors, will be available for advice and assistance at frequent and regular intervals. The progress of first users in system use will be taping conversations with users at the conclusion of the first use stage. It is intended that the author will maintain a distance from the users during this stage in order to avoid imposing any inhibitions on users and to overcome the possibility of his own involvement obscuring or affecting the users' experiences of and attitudes to the system. Any 'bugs' in the functioning of the software can be dealt with on a 'first aid' basis during this stage.

6.6.8 Summarise first use experiences and outcomes

At the end of the specified period of first use a summary of events, reactions, responses and progress will be made, with information collected used to identify outcomes of the implementation at that time. Methods of evaluation will include semi-formal meetings with supervisors and with tutor/student pairs. This will constitute a first stage evaluation restricted solely to practical details of system use. Any minor revisions to system use can be made at this stage prior to introducing the system on a wider scale in supervisory groups, through the agency of supervisors and the organiser.

The possibility remains however that the first use period will reveal such major flaws in the system that it will be impossible to use it on a wider scale without large scale revisions. If these flaws are in the area of software and system design alone, then it is possible that emendations can be made to enable further use of the system as a means of evaluating the curriculum model. In this case a period of 'further use' can be undertaken with additional selected pairs of tutors and students. The selection process here would follow the lines of that used for first use pairs. Following this extended period of further use,

a more searching concluding evaluation will be carried out as a means of answering the hypotheses elaborated earlier in the study.

If however flaws are perceived to reside in the concept of the curriculum model itself, then further re-design will probably fall outside the course of this study and evaluation and recommendations will need to be made on the basis of the existing usage as a means of concluding the study. Should major flaws reside in both areas then the same condition would apply.

The remainder of this study is given over to a descriptive 'case study' evaluation of these stages of system implementation as they actually happened in the New College ABE Unit. Monitoring, recording and evaluation techniques are also explained .



## Chapter Seven

### Chapter Seven

#### Implementation of the MALCM System:

##### The Case Study

### 7.1 Introduction: Case Study Methodology

The implementation of the MALCM system was carried out following the stages outlined in the previous chapter. Most of the stages involving discussion and work with individuals were recorded at nearly all times by means of taping all sessions and meetings with ABE Unit personnel onto cassette tapes, which were later fully transcribed in to typescript. Thus, conclusions drawn which are based on opinions and utterances by ABE Unit personnel are based upon selections from these transcripts. The tapes containing the recorded material are submitted as appendices to this thesis.

Each of the implementation stages is described below, and conclusions regarding each are stated at the end of the section relating to the stage in question. Following the description of the separate stages of the implementation process leading to the end of the 'first use' stage, a

summary of the outcomes and conclusions to be drawn from them is provided, as is an analysis of the data which has been stored in the system about particular students.

The presentation of taped material in the text follows one or two simple principles. Generally speaking, only the utterances of ABE Unit staff are reproduced verbatim. The questions and points put by the interviewer, the author, are normally paraphrased to avoid repetition in cases where similar points were put to several different individuals. Often several different individuals' responses to the same idea or topic are grouped together for convenience.

The responses of subjects are reproduced in quotation marks thus "... " and are as accurate as tape quality permits. Punctuation is inferred and introduced into transcripts but tries to indicate the speech patterns and meanings of subjects as faithfully as possible. Where the speech of subjects is edited, a line of dots within the quotation marks indicates the missing speech, thus:

"I'm not entirely happy about... letter group recognition."

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Where a subject has paused for any length of time or has used a non-meaningful sound as a device for pausing for thought, a hyphen is inserted between the appropriate words thus:

"I agree very much with a sentence you've got in here - that it is easier to use a system than it is to read about it."

Where an individual is quoting in his or speech, single quotation marks are used:

"We would say, 'Yes, I can do it ' and get on with it."

In cases where an individual is quoting the name of another student or member or staff normally referred to anonymously in this study, the anonymous title is substituted in parentheses:

"I think this should be discussed with... (the Organiser)... next week."

This same arrangement is also used to clarify ambiguous pronoun usage in quoted speech:

"So he (Student 22) was happy to do it."

## 7.2 Introducing the System to the Organiser

At the time of the implementation of the first stage MALCM evaluation, the Organiser of the College ABE Unit had been in post for approximately one year, having been appointed on the departure of the author for a new post elsewhere. Previously the organiser worked as a temporary full-time lecturer in the ABE Unit.

A married woman of thirty-five with two young children, the organiser had received primary class-teacher training early in her career. Before being involved in Adult Basic Education she had worked as a primary school class teacher in the North East of England. More recently her involvement in Adult Basic Education had grown from two hours per week as a tutor, via work as a group supervisor, to her present position as described above.

Her involvement with ABE goes beyond the college provision. She is involved in the planning of the ALBSU sponsored training scheme for ABE personnel in the region and is beginning to participate in curriculum planning and training organised by ALBSU at a national level.

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The Organiser has some familiarity with micro-computers, through having access to the BBC micro located in the college ABE Unit. She had used this, largely for word-processing, personally and with students, for over a year at the time of this stage of the MALCM project.

The first discussion with the Organiser was recorded after the author had provided her with introductory training to the MALCM system, both by practical demonstration and by providing a copy of the system user manual ( Appendix I). She showed no difficulty in operating the system under supervision. The purpose behind the first discussion was to ascertain her attitudes to several aspects of the MALCM system and, to a lesser degree, to clarify any uncertainties she might have regarding it. The discussion concentrated, deliberately on the part of the author, on the curriculum concepts underlying MALCM and the way in which these concepts were expressed.

All the quoted references in this section are taken from Tape 1 submitted in Appendix III.

The first point of discussion concerned the viability of introducing a specific curriculum model, however it might be constituted, as a central point of reference for all tutors and supervisors in the unit.

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The organiser firstly expressed some reservations about a structured model. She thought that it would probably help tutors but:

"From the point of view of trying to think in a structured way about what they do with the students, rather than what it actually contains, the fact is that it is a structure and you're forcing them to think in a structure."

Did she then think that many new tutors have a structured view of what literacy is ?

"Not unless we give it to them, no, when they come forward."

What about other people who work in the field ? Did more experienced workers in ABE have a structured model, or concept of what literacy was, to work to ?

"I would say they had a constantly adapting structure that they were sort of permanently re-assessing, that they didn't have anything set to relate to."

What sort of model of literacy then did she work to ?

"I use a student-based model and devise it round that, but I think that MALCM predefines too much the model and the student has to fit into that. I'd like to see it a bit more adaptable."

With this one criticism of the MALCM model itself, the discussion moved to further more specific points concerning the MALCM curriculum model itself. The Organiser was worried about possible negative evaluation deriving from a feeling that no evaluation must imply failure of some kind :

"...there are going to be categories where the student can look and say no, I'm not there and I'm not there and I think it's putting too much negative... there's going to be a lot of non-ticking which could have an effect on the attitude of the student but not necessarily affect the skills."

Given this possible affective outcome, were the detailed perceptual/cognitive literacy skills outlined in MALCM useful or essential for tutors to be aware of:

"Well we've been tutoring with tutors for years now who haven't and I don't think all of them need to. But I think that it's there if they want to..... If it's presented in a format they can accept it in."

Was it acceptable as currently presented in MALCM ?

"The terminology puts more demands on the person using this than the concept of the model and I think you're assessing their ability to come to terms with new jargon before you're even assessing their ability to cope with the concept."

For example, it can be noted that the organiser admits a need for precision in terminology. Would it, did she think be better to use different, 'easier' terminology ?

"...I don't think you, having done this, would find them acceptable because not specific and sufficiently well defined, you start to come into woolly areas."

So what, did she think, might be the main problems foreseen at tutor level in implementing MALCM ?

"I don't think volunteer tutors would touch it with those sort of - because even things like phonics and language experience and social sight vocabulary - I think it's too much to ask them to accept that terminology."



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In support of this assertion, she offered her observations of tutors who had been introduced to the literacy model underlying MALCM on a general Literacy Tutors' training course run by the author some months previously:

"...some of them felt very insecure because they'd been given something which you were familiar with and said that 'look, surely, it's fairly structured, it makes sense' and they had from you a level of expectation which they couldn't reach and it sort of eroded their security and they thought, 'well, I can't manage that perhaps I'm no good', and I think in this field when we are dealing with volunteers you've got to be careful not to erode their security."

Did she not then expect volunteer tutors to reach a level where they could cope with such concepts or terminology ?

"They're not prepared to put in the work, they're only coming for a short time and many of them don't have that sort of background, the whole concept of literacy is completely new, and over a period of years you could perhaps build it up. But if you went out and did a part time job in an area you'd never met before, you couldn't suddenly acquire those skills."

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In trying to impose a system like MALCM, based on research and a precise view of literacy, onto a teaching system that doesn't follow such a precise approach, did she think there might be other problems ?

"I think so. Maybe wrong, you'd have to try it out with volunteers."

Having expressed these reservations towards the MALCM literacy curriculum model, the Organiser did express the feeling that some kind of structure could be helpful:

"...on the other hand, if you give them some sort of structure that they understand and they feel they can cope with, then you're going to help not only their security, but you're going to help make them think structured, and-I think if you can give them a structure, that's a good thing....."

She offered the possibility that the problems she foresaw in using the MALCM system lay perhaps in faults in its verbal presentation, rather than its structure:

"... it's only because of the format and the presentation and the terminology, not the structure, I think the structure is ok, but it can't be all things to all people."

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Assuming then that providing some structure for tutors to work to was desirable, what kind did she try to provide for her tutors ?

"Student-based."

What did she mean by that ?

"Well, students defining what skills they want, students defining what sort of attitudes they have towards learning and what knowledge they have and defining where they want to go, and between setting levels for working through them, and this would fit in, if this was more user-friendly, with students and volunteer tutors. They could then use this and adapt to the structure."

Given the possibility that over and above the expressed needs of the students, tutors may need to observe the apparent, non-expressed needs of students and make decisions about the curriculum based on them, did they need the guidance of a conceptual 'map' of what literacy is, as provided by MALCM ?

"That's precisely what I've just said, that the students - where they are now, what their abilities are now and, ok, if the tutor's got a structure they can split that down.

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The student has a rough idea of what he knows he wants to be able to do, well if he can split what he wants to be able to do into skill areas then you can work towards that. But I'm a bit worried about a list of processes or levels through which the student will work when it may be that he doesn't work in that way and if he's at level three and there are ten levels then he's going to say...I've got another nine, seven, eight levels to go. Whereas if he defined, if this was a little more adaptable, and he could define... or perhaps not have student access to that, have a tutor access and this tutor can then select..."

In making the above comment, the organiser seemed to be harbouring a misconception of the way in which the MALCM model should be interpreted by users. Specifically, she seemed to see the process level structure as a prescribed and graded lesson plan for students, rather than a developmental description of the way adults read and write. She expressed a preference, on that basis, for the approach taken in the behaviour ratings matrix in MALCM:

"That's why I prefer the second half, the behavioural ratings..."

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She did state that the MALCM approach might represent newer ideas which haven't, as yet, filtered down to ABE practice:

"...It's something we've not met before in the last ten years, so perhaps I'm behaving as a tutor would and saying, this isn't entirely familiar, this is more familiar, but perhaps that's a failing on my part with not knowing the system either."

On reconsideration, she thought it not impossible that tutors and practitioners could eventually become familiar with the jargon:

"Maybe when everybody's familiar with this they start to use these... more precise terms than the vague ones they were using before."

At this stage, some attention was given in the conversation to the detailed composition of the MALCM literacy model. The Organiser firstly made some general comments about it:

"...it's interesting to know but it doesn't actually affect the way you teach, you wouldn't teach in order 6,7,8,9,10, they'd be mixed up in different proportions..."

and:

"(the average tutor)... isn't (aware of them)... I'm aware of them but I don't call them that and I don't think I level them like that. I tend, as I say, it might be thirty percent of this, or thirty percent of that..."

When asked about the concept of literate people using different processing levels in various combinations or not at all, depending on the individual's ability and the difficulty of the literacy task, (the example being the bypassing of the decoding level), she concurred:

"Yes, I think, as you say, most of them by-pass that and go straight to - "

Did literate people sometimes need to decode ?

"Yes I think they use that as well as, perhaps, for tactics for getting meaning from a word, of getting a word. I'm not sure that's using lexical memory."

She gave her reaction to the concept of skill level flexibility as follows:

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"...well, obviously, if they know about decoding or the use of sound/symbol, that's going to help them more than if they didn't have that and had to use another skill area or process level."

She was able to give an example of a student who had experienced difficulty through a lack of skill level flexibility.

"He will look at a word and he'll read it in a sight version, and if he can't get at it, he's stuck, because he doesn't have the encoding—or decoding skills—to go back and try at it...."

She once again displayed a misunderstanding in assuming, (wrongly), prescriptive hierarchies of teaching order in the definition of Skill Process levels:

"...they're (the tutors) not going to be aware of them at such finite levels as this are they?... The average tutor isn't. I'm aware of them but I don't call them that and I don't think I level them like that. I tend, as I say, it might be thirty percent of this and twenty percent of that, it's depending on the scheme."

It was notable that by this stage of the discussion she is quite content at this stage to discuss and operate within the concepts and, indeed, some of the terminology of MALCM. She has apparently taken it on board as a valid framework in which to think about literacy and literacy teaching. It was also notable that she did not offer any alternative structure or terminology as a framework for discussion which might be taken as evidence of a fairly well-rooted personal concept of the field.

The Organiser provided reactions to several of the definitions of skills at different process levels within the MALCM model. For instance to Audio Visual Feature Extraction:

"...one of the things that we assess when we come in, well at least I do, is, you know, can they see, can they hear, do they, I don't actually know whether I'd do shape recognition because a lot of them you can tell, but with some of the slow learners that come in, yes, and can they hold a pen, that sort of thing, I think that you do that instinctively, but again perhaps some of the volunteer tutors wouldn't think of that."



An implication here is that there is no tight rein on tutors methods or any monitoring of assessment procedures in the Unit. This, of course, was one of the intended functions of the MALCM system.

She evidenced some confusion over the precise understanding of what 'encoding' is and doubt as to its valid existence separated from 'decoding':

"... I don't think stages are that apparent when we're working with students. They may have found it in research, but they're not finely divided with us. They would use a word like... phonics for the two, most of the tutors I know, and a lot of the professional people I know would still use that and I can see this is more professional to split it down but I don't think the split is as vital to the work we do here."

The use of the word 'professional' here seems to reflect a feeling that the work done within the ABE Unit is something other than professional. There is also here, perhaps, an implicit comment on the relevance to research to classroom practice, as perceived by the organiser.

There were further criticisms of details of the model at this point:

"I'm not entirely happy about... letter group recognition."

and:

"... I think it's very woolly when it comes on to decoding as a process that the students handle, I don't think they handle it as two separate ones. I think this is quite separate from the first one, but I think it sort of blurs into grey when it gets to the next one, the division between level two and level three."

It can be noted here that the organiser's discussion of the skill process levels in terms of students' abilities rather than as a model of the literate person's behaviour, which is what it really is intended as. This is a tendency which occurs, as will be seen later, with other individuals in the Unit.

She also made a point about the use of the word 'recognition', the author having used the word 'matching' to explain the meaning of single letter and letter group recognition.

"...Recognition implies knowing, if you recognise, you know... but matching just means putting the two together that are the same without actually knowing anything about

it... I'm using the term recognition from the point of knowing, having seen before, being slightly familiar with."

This was one of several indications that a possible refinement of the terminology used in 'explaining' the MALCM concept might be required. A further example can be found in the suggested use of 'response' instead of 'reaction' in the literacy behaviours matrix made by Supervisor 3 and recorded on tape 4 (Appendix III).

The organiser had a positive response to the screen presentation of MALCM. For example in considering the 'further information' feature for literacy skills:

"...I think something like that's quite comforting, something that's actually moving on the screen because, looking at this, and you think that it's static, and although there's nothing flashing and I'm not intimidated by flashing keys as perhaps people are when they first come upon them on the screen, it's nice to see something happening on the screen."

In considering the 'further information' feature, she saw more scope for on-line system help and information:

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"...I think there should be levels of explanation, I think if you have this, you should be able to go on and say what I really mean is this, and if you still don't understand it, well let's look at it another way, so that there are levels, as I say... Because different people will need different levels of explanation.."

and:

"... you're aiming this thing at several levels, from someone who's supposed to be professional and has been around for a while, to people who are completely new and in your terms... a lay person. So different people are going to get different things from it, which is why you need different levels of explanation available."

and:

"...these terms, they're quite important when it comes to rating the student, and I think, as I said last time, they need translating and they need a 'for instance' putting in... Because not only would it help them understand it, but it would help them to recall the understanding at a later date. You've given them no sort of memory hooks to hang these on... I think most people, including myself, would like to have in their mind, ah, now he means this word, yes, now I know what he means."

Several conclusions are to be drawn from this first session with the Organiser.

Firstly she was not entirely comfortable with or sympathetic to the curriculum model given in MALCM. She appeared to find it, or at least interpret it, as being somewhat too pre-defined or prescriptive and, consequently, insufficiently adaptable to the needs of individual tutor and student pairs. Certainly she later showed no willingness to adopt it in her own work, either via MALCM or as an addition to any concepts or approaches she herself already had.

In terms of the evaluation this meant that, although she was perfectly happy for selected tutors and students within different supervisory groups to try out the MALCM system, she would be unlikely to actively promote general adoption of the MALCM concepts within the unit, leaving the evaluation process itself to be seen by tutors and supervisors as an isolated 'experiment' running alongside unchallenged current practices. In fact, during the evaluation period, the Organiser had no involvement with the evaluation at all. Given the points already made earlier in Chapter 6 regarding 'cultural' patterns and

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their importance in innovation, this could be seen as a lack of support from a traditional leader, with a concomitant negative effect on the innovation of MALCM.

It is interesting to compare this with the rapid spread and popularity of the use of Word Processing within the ABE Unit, a resource which was personally heavily used and favoured by the Organiser and which she pro-actively developed with tutors and supervisors, to a degree that most individuals within the Unit, at the time of this evaluation, conceptualised computer use primarily in Word Processing terms.

Secondly, it is seems, on the evidence of this discussion, that the Organiser herself held no explicit, formal structured concept of literacy as a form of human-behaviour, which might be used as guide or map to developing the individual student's curriculum. Indeed, she showed no apparent need or anxiety to have one. The likelihood would be that, in the absence of the Organiser actively promoting a particular concept or approach, notions of what literacy was within the Unit might differ widely, if they existed at all.

A probable difficulty was therefore highlighted at this stage of the evaluation, that had its roots in this lack of an explicit, accepted notion of literacy within the

Unit. This would be that in introducing MALCM to Supervisors and Tutors, not only would a new or different model be proposed, but the very concept of an explicit model would be encountered, adding a further strand to the burden of accepting an innovation. In terms of the cultural view of innovation outlined in Chapter 6, there would be a strong possibility that the introduction of MALCM would be attempting to get Unit staff to utilise a concept for which they may not have expressed or felt a need and for which the leadership of the Unit had shown no support or need. The effects of this difficulty will be discussed later in chapter nine.

It should be noted that this lack of a common concept was not true of teaching approaches to literacy. The term 'student-centred' used by the Organiser in this first discussion recurred in discussions with other unit staff, as will be noted later, and was frequently used to characterise the work of the Unit. It generally was interpreted as being a process of ascertaining the expressed and observed needs of the student as a basis for planning the student's work. There was evidence from simple observation of such common vocabulary and from teaching practices that the Organiser had succeeded in some degree in imposing a pattern of teaching practices within the Unit, lending credence to the belief that she had established a degree of leadership and authority

within the Unit. This was supported by the evidence of her success in securing the adoption of the Word Processing facilities as mentioned earlier.

It is possible to postulate further reasons for the Organiser's lukewarm attitude towards MALCM. The evidence of the conversation during the first session summarised above shows that she did hold genuine misgivings as to the terminology and presentation employed in MALCM, though it is apparent there she had some misconceptions as to the degree of prescription which the system imposed on users.

In addition to this evidence however, it must be borne in mind that the Organiser had recently taken over the running of the Unit from the Author and may have felt a need to assert her independence and authority in her, relatively, new post. In addition, she had played no part in the development of the MALCM system and this in itself may explain some part of her lack of sympathy towards it. As Blumenfeld et. al.(ibid.) point out:

"... If an innovator ignores the traditional leaders... the chances for implementing CBE (Computer-Based Education) are quite small... Outsiders who propose change without securing prior approval are bound to be perceived as threats." (Blumenfeld et. al. ibid. p.12)



Although the author had secured the superficial approval of the Organiser to continue with the innovation of MALCM within the ABE Unit after the post of Organiser had changed hands, nonetheless the lack of involvement of the Organiser in the development of the MALCM system can be construed as a form ultimate non-approval and cannot be ignored as a factor in the Organiser's attitude to the system and, therefore, to likely success of its implementation in the Unit.

With these conclusions in mind the next stage of the implementation, the introduction of the system to Group Supervisors, was undertaken.

### 7.3 Introducing the system to the Supervisors

Four group supervisors were operating at the time of the start of the implementation, each having a supervisory group of between 5 and 14 student/tutor pairs. All four were women of middle age and are identified here simply as Supervisors 1, 2, 3 and 4. All four had received formal teacher training earlier in their careers, though none had any formal training in Adult Literacy as such, other than short courses organised at the college or regionally within the ALBSU sponsored training program for Adult

Basic Education staff. Some time after being introduced to the MALCM system, Supervisor 1 relinquished her position as a supervisor and it was some time before a replacement supervisor, Supervisor 5, was appointed to replace her. There was, therefore, a hiatus in supervision for group 1 in the Unit.

Supervisors 1, 2 and 3 were responsible to the Organiser for mixed ability groups of students. Supervisor 4 however ran a group specifically intended for slow-learning students. Her own background in teacher training was slightly different from the other three supervisors in that she had trained to teach mentally handicapped adults and was at the time employed at an Adult Training centre during the day. The slow-learners' group consisted of individuals all of whom had some experience of working in an Adult Training Centre.

A similar discussion was initiated with each of the supervisors separately, each taking up approximately one hour. Their responses and reactions to identical issues were sought and the following summary includes utterances from all four grouped together. Previous to the discussions, all had been given a chance of reading the system Manual (Appendix I) and had been given some training in operating the system. Despite this, in three

of the sessions (Supervisors 1,2 and 4) time was taken up with the necessity of reviewing certain aspects of MALCM operation.

Most supervisors were reasonably forthcoming in discussion, though naturally one individual may have said more on a particular issue than another and vice-versa. The exception was supervisor 4. This lady found herself very much in monosyllabic agreement with anything said by the author: as a result, her responses were fairly limited in quantity and duration and yielded little material for the evaluation.

The first topic discussed was the supervisors' current uses of the computer in general terms and in Literacy Teaching. One comment pointed up the fact that using the computer as a resource added an extra burden of learning how to operate a machine as well as understanding a system and its concepts.

"...I don't understand the computer you know. ...I'm learning that skill as well as trying to absorb the rest of the workings of the - I'm trying to word process, so that's another skill - again, it's not that I'm worried about the keyboard, that doesn't worry me at all. What does worry me is getting into these things, because I

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don't remember the password to get in. You know, you've got to do star this and I never know which one. And I forget from day to day." (Supervisor 1 - Tape 5)

There was a generally positive feeling towards the use of the computer in ABE teaching:

"I think it has value, yes.... in the literacy, I'm not so sure about the maths, unless its reinforcement... With the literacy then it's different again, because they're actually putting down a nice, neat copy in some cases. They're actually learning, practising their spellings that kind of thing, learning to edit - " (Supervisor 1 - Tape 5)

It should be noted that this view of computer use is coloured entirely by usage as a word processor, reflecting the wide awareness of Word Processing in the Unit.

"I'm very happy about it, I think it's an excellent use of computers. As a teaching machine... I do use it a little bit for administration... I have several commercial programs, about five of my own that I've written myself..." (Supervisor 3 - Tape 3)

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This supervisor (3) showed evidence of a wider acquaintance with the use of computers in education than her colleagues.

The supervisors showed varying degrees of comprehension of the basic function of the MALCM system :

"Well. it's sort of - so that the students, the tutors and the supervisors can all see where they're going. I would assume. So that you can have a permanent record of where you are, and where you would next - where you've been." (Supervisor 1 - Tape 5)

"I don't understand it very well, I understand the computer has a structure which leads you from one thing to another - At one stage the computer suggests, I imagine, various alternatives that you might go on to - has a syllabus more or less in - " (Supervisor 3 - Tape 3)

There was a certain amount of discussion regarding the desirability of a commonly held concept of literacy or even curriculum being used in the ABE Unit. Supervisors were asked whether they did think it desirable:

"I think roughly, yes. It couldn't possibly be precise we're all dealing with so many different individuals but I think for some people to have a precise idea and some people to have no idea is perhaps leaving things a little bit too loose." (Supervisor 2 - Tape 7)

They were then asked further whether there was any commonality of approach to literacy teaching between supervisors or organiser ?

"I don't know. Perhaps it would be wrong to say 'Yes, I think so', because to be perfectly honest, we don't know. I do think we ought to get together more on this and discuss this kind of thing. We're always going to, of course, we're always saying we ought to get together, and discuss so that there is an overall - " (Supervisor 2 - Tape 7)

The supervisors were asked to elaborate on their own concept or model of literacy :

"I don't proceed in such a structured way... (as MALCM)...I've never said to myself, what's literacy ? I mean, not in so many words, I wouldn't sit there and think..." (Supervisor 1 - Tape 5)

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"... I think it's how much literacy the student wants. Not my idea of literacy necessarily, but the student's idea of literacy. If it were my idea of course, it would be everything, wouldn't it... I would aim at certain things because, very often, it's all well to say, what does the student want to gain, or what is the student aiming at, and nine out of ten students don't know, they come and they say well, 'Oh, I want to do it all.' So therefore, you have to start and make an overall pattern, an overall scheme... I first of all want to know what they want to know. And usually, as I say, they don't know what they want to know. And go on from there. And obviously go through the kind of skills they want to reach the - things that they are going to use the skills for." (Supervisor 2 - Tape 7)

"It's in my head... I think I'd be able to show you rather than describe it... I would show you with another - with a student." (Supervisor 2 - Tape 7)

"I have yes, but I don't have it written down in front of me, I just have a general - it fits in more or less with what I do at school which is written down, laid out. I have two broad ideas, the reading to learn and the learning to read thing and when you get to a certain stage of learning to read you can then extend that by reading to learn something else and that feeds back into improving

your reading. That's a general overview and then of course, splitting it into the phonic approach and the look and read and the various aspects there - And the motivation and the self-esteem aspect of it is very important." (Supervisor 3 - Tape 3)

Supervisors 2 and 3 were able to give some idea of the origin or source of their concept of literacy :

"I think it comes from years of experience actually."  
(Supervisor 2 - Tape 7)

"...certainly, very little was taught to me in teacher training. I think we talked more about ideals rather than practicalities when I was training. That's not to be faced with practicalities when you work it out yourself..."  
(Supervisor 2 - Tape 7)

"...you find that after you've read a lot about it and studied it - literacy - you think it's your own idea, but if you search back you find that it's an amalgam of several peoples' different notions that have come together - and it has to fit into your experience. I think before - if it fits in and you think, Oh yes, with a certain student, that fits in with this theory or that, I'll try



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that again when I come across somebody like this. You know, I think you do it intuitively but really it's based on experience and reading." (Supervisor 3 - Tape 3)

It is noteworthy, in the light of the conclusions drawn from the first session with the Organiser, that none of the supervisors indicated having any concept of literacy deriving from policy or guidance from within the Unit.

In the light of what they had said about their concept of literacy, what then did supervisors use as a system for guiding tutors in planning their work with students ?

"Well, I would obviously then, in that case, look to see what they had done and about where they were - in their work, and then from knowing the tutors and the students, I would be able to advise them on where they go next, just because I know a vague pattern, not a structured pattern, in my own mind.... I mean I know the kind of skills that, hopefully, they should have covered. And then you branch out into the fields in which they can apply these skills. And so I just look - what they've done and see where the next approach is, or whether you've got to sort of, obviously, there's something that they haven't grasped, and that's continuous revision." (Supervisor 1 - Tape 5)

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The final sentence of the above shows considerable vagueness and confusion. There is earlier, however, a reference to the application of skills which compares to the behaviours matrix approach of MALCM. The general response to the concept of literacy behaviours as outlined in MALCM was always more favourable than that given to the model of literacy skills.

Other comments on approaches to tutor guidance were as follows:

"I think they should know why you do one thing in relation to another and how things intermesh and how it's a sort of jigsaw and suddenly you realise that you're not doing each part of it in its own separate box, and you suddenly come to one box and you think: 'Oh but I know that because I've already done A and now it follows that B will come next and having got those together, C is going to follow on logically.'" (Supervisor 2 - Tape 7)

"... I think it's also important but difficult that the supervisor, without looking over everyone's shoulder all the time, does know what everyone is teaching and comes back to the point I made earlier about foundations and the next step, that people aren't just taking something out of the air and teaching that on a rocky - so that they can say, 'Well, really, you know, before we do this, we should

have gone back and done so and so.' Because I think that it's a very difficult thing to do a non-teacher to - you know that with the best will in the world, someone comes along and wants to learn about so and so, so they plunge into that subject, without knowing that they know the necessary skills to approach the subject." (Supervisor 2 - Tape 7)

Supervisors were asked then if they could detail to any degree the constituent skills involved in being literate:

"... You need sort of skill to appreciate shape, to move left to right... to go right back to the beginning... you need the sort of aural and visual skill to appreciate the shape, letters, you need the, I don't know, intellectual skill to understand that a particular shape represents a particular sound, then you have to learn that that shape is that sound." (Supervisor 2 - Tape 7)

This reply evinces a tendency, demonstrated elsewhere, to discuss literacy skill or performance in terms of the learner rather than the competent reader.

"I think that it's very difficult to explain to someone what you mean (by literacy) because... we've been doing it for so long, for so often, and we do it so quickly, that we really have to stop and think about what it is we're

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doing, and I think that, yes, you have to look at the shape, and you have to realise that the shape makes a sound, and then you have to realise that certain shapes can be put together and make sounds and certain things are never put together..." (Supervisor 2 - Tape 7)

This response is interesting as it seems to characterise the general approach pertaining in the ABE Unit, that much of the teaching was based on implicit, unstated assumptions about literacy that are never questioned and never articulated or discussed between individual members of staff.

A more concise response came as:

"Yes, I could, but I'd need to think about it.... but not as well arranged as that." (Supervisor 4 - Tape 9)

The next point dealt with whether supervisors could discuss the relationships between topics or constituent skills as envisaged in literacy teaching:

"Well, obviously, that... (teaching silent 'e' which arose in discussion as an example)... would come before I do things like prefixes and suffixes of a more difficult nature. I might do some suffixes and some prefixes early

on, depending on if they're fairly simple. I tend to do it from what they've written for me - or the kind of things we're doing." (Supervisor 1 - Tape 5)

"If they're writing something, they're making something up, or I'm writing them something, then I would draw out of it those things at the level I think they can assimilate. And then we may go on then to look at it more closely.... And I don't say, oh, we haven't done 'ing' yet, so I won't do magic 'e' now. I do it because it comes out.... I do have a structure, but I don't let the structure override instinct." (Supervisor 1 - Tape 5)

"I think you learn a lot by teaching, and this is where a lot of tutors make mistakes, that you cannot teach certain things until you've taught something else. In other words that a teacher knows what the foundations must be - " (Supervisor 2 - Tape 7)

"If they nothing at all... I would go through a certain sequence of checking that they knew the letter sounds singly and the letter names singly and then the variations on that, the things that they might need if they're not the first thing and then the digraphs and so on. I don't sort of set out and say, right, we're going to learn in this order." (Supervisor 3 - Tape 3)

The overall feeling here seems to be that there is a need for a sequential view of presenting component skills as part of a teaching program for students, though there is no really explicit statement of the sequence that is implied.

Supervisors were then asked to describe their approach in literacy teaching. The common concept elicited from all was the notion of deriving some kind of curriculum or working plan from a knowledge of the student's needs and interests, reflecting the 'student-centred' comments of the Organiser:

"Well... it's sort of student orientated. So it comes from their work, so it's sort of from their work, but certainly within my structure, something that I know... Now, that's - what I would do, but how my tutors would go about it, because I think they're less experienced in what... they don't possibly have a structure plan inside them, because they haven't been teaching very long. Then perhaps they do it... they don't always have that. So I try to guide them and say, perhaps this might be the next line, or let's look at this piece of work and say - that's for the people who need that kind of work." (Supervisor 1 - Tape 5)

There is a noticeable difference here between this supervisor's assumption that structure must mean a prescriptive way of ordering teaching and the MALCM concept of a descriptive map or structure for use in guiding teaching. The claim to have a 'structure' that is not explicit but is supposedly used to some degree in making decisions about teaching was common to all supervisors. The style of guidance, where tutors, working apparently to no centrally explicit syllabus or curriculum are given vague guidance based on assessment of student's output is also common :

"I usually try to find out as much as possible about the student and their interests and what they actually think they need - I'm not trying to sell them a package that is a re-hashed version of what they do at school really. I'm trying to find out what their situation is in order to pick the things that would be most effective quickest. In other words I'm trying to find the vocabulary that they naturally use and teach them that because that has the biggest impact that they can see. And as soon as they see an improvement in, say, their spelling or whatever, then they're motivated to try harder and then, when you've got a certain distance, I think you can then start suggesting, well, you've done quite well so far, why don't you try such and such. But I think initially you've got to go from what the student needs or thinks." (Supervisor 3 - Tape 3)

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"...you usually find that there's very rarely anybody who doesn't know anything at all. You're really trying to look at the jigsaw with holes in it and trying to find out where the holes are... if you really think somebody knows nothing, I would start in a particular sequence with phonics and in a particular sequence with sight, social sight lists, you know I do a bit on one and a bit on the other and I kind of build them both up. There is nobody who really doesn't know any of those things, so every so often you find something you know so you might branch off a bit and follow something that they appear to know a little about." (Supervisor 3 - Tape 3)

The above is the first idea in the Supervisor discussions at this stage that clearly complements the 'map' approach which underlies MALCM.

"Well - I try to assess them... you see, the ones that I work with, quite often they already have the basics, so I try to find out how good their comprehension is. I find out quite often that they write but they don't understand what they're writing, they copy, and so you'll have to work back..." (Supervisor 4 - Tape 9)



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Supervisors were asked to comment whether the MALCM Model seemed a reasonable way of looking at literacy and basing literacy teaching on :

"Well, yes, I think that readers do that, yes."

(Supervisor 1 - Tape 5)

"Yes, it does." (Supervisor 2 - Tape 7)

"I think for our purposes it's just about detailed enough."

(Supervisor 2 - Tape 7)

There was a negative response:

Supervisor 4: "No, I don't think so"

Author: "I don't mean your slow learners, I mean adults in general"

Supervisor 4: "Oh. Adults, yes, yes"

But once again there is confusion as to whose performance the MALCM model is based on.

There were specific criticism of details of the MALCM Model:

"I did put a question mark about encoding and decoding. I'm not sure whether those two must remain as separate, you really think they are separate things ?... Do you really think they are two separate entities ?... They'll think: Oh, that's two separate processes, I've got to learn how to do one then the other, but in fact, it's like using your clutch and your accelerator." (Supervisor 2 - Tape 7)

"I also thought again, you could put more emphasis on 'Lexical Memory' for adults." (Supervisor 2 - Tape 7)

"... I think some of them (tutors), you know, apart from the ones who are put off a bit by the computer, I mean if you could get them over that, I think there are some of them who could find it very interesting, because they want to learn while they are teaching their student. But there are some who, for two reasons, one that perhaps they're not all that bright... I don't think that would appeal to that category, you know... I don't think you'd get very far there. Or you get the other sort, I've had one, who'll say, 'Oh, you're making it all too technical, it's nothing like as difficult as all that.'" (Supervisor 3 - Tape 3)

"It might be helpful if you had a one-to-one relationship, but I think that it's difficult to do that - in a group... although you could do it maybe, I suppose, once every six months... or even one to every twelve months, because some of them are very slow in changing - And also you might find that they might be quite advanced after eight or nine weeks, and then, when they come back after the summer, they've gone back again." (Supervisor 4 - Tape 9)

Supervisors were asked whether there were any apparently non-teachable elements in the MALCM model which were none the less valuable for being included :

"Yes, because I think that it's a stage in reading where you cease to have to build it all up and you just look at it and quickly assimilate the meaning. So I think that it possibly has to be monitored." (Supervisor 1 - Tape 5)  
(referring to ENCODING)

There were some reasonably favourable comments towards the MALCM concept of literacy behaviours :

"They seem fairly comprehensive. I would have to sit and think of them and obviously give them more thought than I have - I think they're fairly comprehensive." (Supervisor 1 - Tape 5)

"I think perhaps you could put more emphasis - that this - achieving - being able to perform a literacy task and the reaction to it, and also reading for pleasure, is the sole purpose, not the end result, of the boring task of going through literacy skills. Because having literacy skills alone is nothing... I think perhaps you should emphasise it more in this... and the important thing is that you can react to literacy tasks that are set you, or perhaps just sit down and enjoy reading." (Supervisor 2 - Tape 7)

It is possible here to compare the willingness of Supervisor 2 to discuss the issue in MALCM terminology and with the similar acceptance of the Organiser of the MALCM concepts and terminology that was noted in the previous section.

"Well, off the top of my head, most things seems to be there. I'm sure if I sat and thought about it I'd probably think of something else." (Supervisor 3 - Tape 3)

"There's a difference between a reaction and a response, isn't there?... When you're talking about behavioural conditioning and all that responses and reactions - I don't know which is right, but I know that they are different." (Supervisor 3 - Tape 3)

This seems a useful and valid point to make.

"... this is very similar on first sight to Barrett's Taxonomy." (Supervisor 3 - Tape 3)

Supervisors were asked whether the MALCM concept of drawing up and developing a literacy curriculum via Voluntary/Personal contexts matched current practice in the ABE Unit :

"Whether you draw up a list, I'm not so sure. But you definitely have areas where you work with one particular student that you wouldn't work with any other student, because that's in many ways a stimulus for getting them on to reading, is to pick out something that they're desperately interested and work from there." (Supervisor 1 - Tape 5)

There was one reservation about the behaviours matrix:

"... the thing that struck me...was, it was complicated to, I know it's not really complicated to assess - but I felt that it was unnecessarily complicated to record these things... I thought that that might take up - you did say in the text it would take about three minutes - I have my reservations about this." (Supervisor 1 - Tape 5)

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In general terms, how useful would Supervisors think MALCM for their current tutoring group :

"I think with the tutors at the moment, it has a fairly limited use. Because they're new tutors, and although new tutors possibly need help with structure, because they're not as aware where to go after they've been where they are, then I think maybe that some kind of structured system may - would be helpful. But, I think at the moment, as it is, it might be difficult, because they have to learn the terminology and understand that, as well as being able to cope with the program... For myself, dare I say, I prefer to go on as I am, and have the structure that is inbuilt in me, rather than one that is forced upon me... I would like - but - it's nice to have something to check, you go back occasionally, I stress occasionally, to go back and check that you haven't omitted something that's staring you in the face and you haven't seen it. Because you can go on thinking that you're going on beautifully, and your plan is good, and you may well have missed something out. So that might be some kind of backup to say that, look you haven't done this, and this is obviously glaring you in the face.... But I think that some of the tutors that I've got might find it a bit of an imposition...." (Supervisor 1 - Tape 5)

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"Maybe some people will still prefer to keep their data on the student in their own memory or in the form of notes and in that case I don't see why we should force this on them. Others may enjoy seeing the success rate build up and I think some of the students may enjoy seeing the success rate build up, seeing it come up on the screen... I think the tutors, also, once they've got used to the idea, would find the instructions on 'what do I do next' very helpful. If they see on the screen - Oh. I've done so and so.... now I go on to that... I think they'll find that very helpful. At the moment, of course, all they can do is come and ask me." (Supervisor 2 - Tape 7)

There were numerous comments on the terminology employed, both in the handbook and in the system itself:

"Hard work... Because I had to keep referring back to the text, going back to... because I haven't, unless I make notes... if I made notes going through then it wouldn't be so difficult, I had to keep going back to look what it really meant." (Supervisor 1 - Tape 5)

"...I found the terms difficult because they were totally new to me really." (Supervisor 1 - Tape 5)

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"... I took one look at them in the book, yesterday, and thought, ooh, those awful terms again. But when I came to look at it again, I began to, I did actually, begin to isolate and understand those terms." (Supervisor 1 - Tape 5)

"I'd prefer other terms." (Supervisor 1 - Tape 5)

"Right. These were my first reactions. You may delete this if you wish. On the introductory section, when I first read it, I thought 'Oh no ! All that jargon on something I already know anyway, and I've got it all around loosely in my head. It was very much biased when I first read it, on a application to myself, without giving any thought, I agree, to non-teaching tutors. So reading as applying it to myself, I thought, 'Oh, I don't want to read all that jargon. It's all there somewhere, and I can get it out when I need it.' " (Supervisor 2 - Tape 7)

"The second time I read it, I thought that this had, in fact, sorted out what was in my head, and put it down neatly in order, and arranged it, in a way I probably would have done myself, had I been forced, as you were trying to put it down in the beginning in notes. And I thought, now, this is great, because someone who is not a teacher would find this very helpful. I hadn't really found a necessity for it because I'm doing it all the



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time. But looking at it from someone else's point of view, I thought, well, this is marvellous, this puts the thing into order." (Supervisor 2 - Tape 7)

"... well, obviously, I didn't follow it all immediately straight away, but I would have possibly - your average tutor who might be using this, who hasn't got the same background, might not follow that. I mean I don't know to what extent I followed it, but I assume I understood what you intended, most of it, but I would have thought that someone who hadn't done any of the theoretical stuff might be a bit baffled by that. I know the first time I saw the word 'encoding', it didn't suggest to me what it actually means... I would assume that a lot of people would mistake that until they - " (Supervisor 3 - Tape 3)

"... I think, although you've got different words for some of them, I think the concepts that I have, you know, studied as it were, but sometimes with different - terms or whatever." (Supervisor 3 - Tape 3)

"I wouldn't say I didn't like it (the terminology), it just happens to be different. One has to be a little flexible. You can't insist that everybody uses your terms." (Supervisor 3 - Tape 3)

Supervisors were asked if they had any suggestions for alternative terminology :

"No. Cause I'd have to think about it. Obviously you've thought about it and I'd have to think about it. I would prefer language that is more common, particularly if it's for use with other tutors, because I think that they would have, like me - they would have to look - and learn what they meant before they could actually use them. And you feel that you can't be familiar with them if you've got to think, now, what did it mean." (Supervisor 1 - Tape 5)

"I don't find them instantly recognisable. I'm sure that if they were re-written in something, in more - recognisable terms, then I wouldn't have any problems. And then I would make a better judgement as to whether I wanted to rate them or not." (Supervisor 1 - Tape 5)

It's difficult to do that, isn't it, because every profession has got its jargon. And it's a kind of shorthand... in which you can communicate, provided you're all in the same profession.... " (Supervisor 2 - Tape 7)

There was a feeling that terminology used in referring to Literacy Behaviours was easier to come to grips with than that used for Literacy skills :

"Yes. I didn't have any problems with those at all."

(Supervisor 1 - Tape 5)

"Perhaps if they (her tutors) were competent with computers they might come in and assimilate that language quite easily." (Supervisor 1 - Tape 5)

The actual physical usage of the system, based solely on the demonstrations given at that stage was the subject of some comment:

"You're always tempted to touch something, aren't you, if nothing happens?" (Supervisor 3 - Tape 3)

"It does take quite a while the printout, that's another thing I can envisage, because people, I know in my session, people tend to work fairly hard up to quarter to nine, then if everybody's haring in to try and get one of these things out before nine o'clock... It would mean them stopping off, some of them, at half past eight, to give up quarter of an hour of teaching, just to put out one of these, Then you would have this thing (the printer) ticking away in the background, while everybody else is working... I don't know whether it would put other people off."

(Supervisor 1 - Tape 5)

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"... I agree very much with a sentence you've got in here - that it is easier to use a system than it is to read about it... I found that my own tutors, when I wanted them to use the word processor, resisted at first, as I was, and it wasn't until I insisted they do it and I gave them little aide-memoires and showed them that it really worked... they've all now found something they want to do on it." (Supervisor 2 - Tape 7)

"I think once they're (the tutors) used to the system - I think possibly we'd have a bit of resistance to getting them to do anything with it in some cases, but I think once they started, they would use it, but whether they would be convinced themselves of - I think the responses I've heard from people are they think it's a way of checking up whether they're doing the job, whether they're covering all the various areas or not. I don't think in general it appears to be something which is going to help them plan what they're going to do next and check that the students have covered the various aspects... But if they could be brought to use it efficiently, quickly in a week or two, then we might convert them." (Supervisor 3 - Tape 3)

There were also queries about the use of the ratings system :

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"... There's a question here about ratings, of course, they are subjective, aren't they... If you did a profile for each student, I think the information then could be very useful when you have to pass that student on to another tutor. But you may have to run through the program again with a second tutor, because they might have a different feeling about it... whereas one tutor might think, oh, I'll give him three for such a skill, another tutor might only give him two for that, I think he needs more help..."

(Supervisor 2 - Tape 7)

"... you've written that if they've reached stage four then they need no more help... 'is sufficiently well mastered to need no further revision.' - I wonder if anything ever is. I'm not sure there's anything you can ever say that they will never, ever need to go back and revise that." (Supervisor 2 - Tape 7)

Given some doubt about the subjectivity of the rating system was there a need for some objective form of testing to base ratings on ?

"...I think you'd have to try them out. I think you may be further complicating it with tests in.... You would have to, if you devised tests, you would constantly have to revise them wouldn't you ?" (Supervisor 2 - Tape 7)

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Some of the supervisors gave some thought to their own role in the use of the MALCM system:

"... if tutors can be coerced... into using the system, and they do use it correctly, I feel it would be invaluable for the supervisor. For example, if the tutor doesn't know what to deal with next, he/she comes along and asks the supervisor. Now the tutor has the majority of knowledge about the student's abilities, and problems, and what he wishes to do, so I have to sit down and we all three of us have to discuss it together... Now, if I could go over to the screen and say, let's see where you are in the program, the three of us can go over and put it up, I can see where they are, and what they've done, and then say, yes, we want to do this, and this is where you'll find all the information. So it should, if working correctly, help the supervisor to get quickly to the heart of the problem." (Supervisor 2 - Tape 7)

This is an optimistic but slightly misguided comment as to actual working of the MALCM system. The expressed need for a materials reference element is imaginative however and indicates a possible useful addition to the system.

"... I think my final comment was that it depends, the whole system depends, on how well the tutors would use the system. In other words really, on how well the supervisor would con them into using it properly - " (Supervisor 2 - Tape 7)

From these first discussions with Supervisors, a picture emerges of individuals who run groups of tutors and students on a non-prescriptive, first aid basis. They show no sign of working to a common concept or model of what literacy might be, though they do share the Unit preference for basing teaching around the expressed or observed needs of the students. Although there is awareness that tutors might be working, to some extent, without a clear structure or a curriculum, they seem to see their role as providing help on an ad hoc, at-need basis. It might not be unfair to say that their approach is, at times, inspirational rather than systematic. The introduction of an explicitly structured like MALCM would therefore bring a method or approach to teaching and assessing literacy which, to an extent, ran counter to current practice and it could be hypothesised at this stage that this might engender resistance among supervisors who felt that their working practices and assumptions were being challenged. Naturally this would effect the ease and manner with which an innovation like the MALCM system would be received.

In fact, the role of supervisors in evaluating the MALCM system was projected by the author to be of some importance, in that it would be probable that tutors using the system would have to resort to the advice and support of the supervisor in the absence of the author. (It would be important to evaluate the system in a genuine context and this could not be achieved with the author continually present.) Whereas enthusiastic encouragement of tutors by a supervisor would have positive results, it was likely that manifest coolness and lack of interest or understanding would have the opposite. The degree to which the supervisors' attitude would affect the process of innovation would, of course, depend on the strength of the role of the supervisor in her particular group and the Tutor's attitudes towards her. This emphasises the likely value of the post evaluation comments and attitudes of supervisors in examining the success and problems of the system in use.

Equally important in this first session are the expressed responses of the Supervisors to the MALCM system. With regard to the detailed content and presentation of the MALCM system itself, the supervisors' attitudes seem to range from being amiably encouraging (Supervisor 2) to politely hostile (Supervisor 1). There is certainly no evidence of any of the supervisors being taken with



enthusiasm for the system on the basis of their introduction by the author or by their reading of the system handbook. Their perception of it, as evidenced by their remarks, is as an experimental effort conducted largely by the author, which involves them peripherally in as much as some of their tutors will be using it. There is no sign however of any willingness to be identified with the evaluation.

Views on the likely usefulness to their groups of the system range from mild enthusiasm to rejection. For example, supervisor 1 does explicitly reject it as a resource for her own use, using fairly strong vocabulary to characterise her resistance :

"...For myself... I prefer to go on as I am, and have the structure that is inbuilt in me, rather than one that is forced on me..."

" ... I think some of the tutors that I've got might find it a bit of an imposition..."

On the other hand, supervisor 2 is prepared to admit to the possible usefulness of the model.

"... Now, if I could go over to the screen and say, let's see where you are in the program, the three of us can go over and put it up, I can see where they are, and what they've done, and then say, yes, we want to do this, and this is where you'll find all the information. So it should, if working correctly, help the supervisor to get quickly to the heart of the problem."

It is not difficult to speculate as to the origin of the less positive attitudes. As was the case with the Unit Organiser, none of the supervisors was involved in the development of the MALCM system, and this may go some of the way to explaining their relative distance and lack of enthusiasm at this stage. It cannot be said however that their attitudes show signs of threatened status; none of them gave any indication that they thought its use might undermine their own role within the Unit or within their own groups. This may be due to the fact that, at this stage, they felt that the system would hold little attraction for their tutors and would therefore firstly, not require a great deal of involvement for them during evaluation and secondly, offer no real alternative for their own services and function.

At this stage then, the overall impression gained was that the MALCM system would be evaluated by tutors in groups supervised by individuals, none of whom were entirely committed to the MALCM concept but whose attitudes would be important in motivating tutors using the system.

### 7.4 Selection of first stage tutor users

With the co-operation of supervisors, six tutors were selected as users for the first use stage of the MALCM evaluation, two each being taken from Groups 1,2 and 3. As mentioned earlier, the group run by Supervisor 4, for slow-learners, was not conducted on a on-to-one basis, the teaching being carried out by the Supervisor her self with occasional assistance from un-attached tutors. For this reason the MALCM system was not introduced to this group for first-stage use.

The tutors were selected on wholly at the suggestion of supervisors. The selection was done after the first introductory sessions with supervisors, so that these latter were well aware of the task the tutors would have to carry out. All participating tutors were asked if they would be interested in taking part in the first-stage evaluation and all participation was, of course, voluntary.

The participating tutors are, like their supervisors, referred to by numbers. Tutors 1 and 2 worked with Supervisor 3, Tutors 3 and 4 worked with Supervisor 1 and Tutors 5 and 6 with Supervisor 2. Relevant, brief details of each of the six and their students are given below.

Tutor 1 is a middle-aged married woman with a grown up family. She has no paid occupation and has been teaching within the Adult Literacy Scheme for several years and is the longest established volunteer tutor currently working in the Unit. She has had a number of different students in that time and is currently working with a young man in his twenties, (Student 1). She has had no formal teacher training but has attended several college and regional training courses for volunteer adult literacy tutors.

Tutor 2 is likewise a lady of middle age, originally from Grenada in the Caribbean and married. Her student (Student 2) is a man in his twenties. She has been working with the Unit as a volunteer tutor for two to three years, has no formal teacher training but has attended an introductory tutor training course run by the author within the Unit during his time as Organiser.

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Tutor 3 is a man in his early thirties, currently teaching part-time in a University Politics Dept. He has a doctorate but no formal teaching qualifications, other than having attended a volunteer tutor training course at the college. He has been a volunteer tutor for some two to three years. His student (Student 3), is a man in his mid-thirties who has been involved with Unit as a student on several occasions and now making a further attempt to improve on extremely rudimentary literacy abilities.

Tutor 4 is a middle-aged, married lady with a grown up family who works as a British Telecom switchboard operator. She has had no formal teaching experience or qualifications before working as a volunteer tutor, but has attended the introductory tutor training course. At the time of the evaluation she had worked in the Unit for approximately one term. Her student (Student 4), is male, twenty-one, and has been attending the Unit on one course or another for several years without making much progress at all.

Tutor 5 is a married woman in her early twenties with no family. She works as a personal secretary in a company manufacturing TV tubes. Like all the other tutors she has

no formal teaching qualifications but has attended a tutors' introductory training course. She has been working as a tutor for under a year. Her student

Tutor 6 is a woman in her early thirties, recently separated from her husband. She has no formal teaching qualifications but has attended a tutors' introductory training course. At the time of the evaluation, she was working with two students, one currently attending a training college for the handicapped and the other

### 7.5 Introducing the System to the Selected Tutors

The six selected tutors were introduced to the system by the author and trained in its use. The pattern for each was the same: each individual was sent a copy of the User Manual (Appendix I) and then was given approximately two hours introduction and training in the system with the system itself running on the BBC micro. At the end of the two hours each tutor had discussed in some detail with the author the concepts and ideas involved in the system, and had demonstrated a competence in actually entering and retrieving data.

All the tutors managed to be able to handle data entry and retrieval, in the form of entering ratings and subsequently generating Literacy Curriculum Profiles and no individual among them appeared to experience any greater degree of difficulty than another. Whether, in the relatively short time of two hours they had genuinely taken on board the overall concept of the system and the meaning of its key ideas and terminology was more difficult to assess. Certainly some of the terminology was unfamiliar to the tutors and did impose an extra burden in becoming accustomed to the system:

"It's probably difficult, truthfully, because it has lots of terms that I've not come across before, which I'm going to have to come to terms with before I can judge my student by them. So we've got two problems there - come to terms for me and then finding some way to fit that into this - that's about all I can say at the moment because I'm too busy trying to fit all those new words into my new groups of things - new ways of - new acceptabilities of what I do routinely and what I do in my own life, day by day. But putting words to that, which you don't when you're grown up, you just do them, as you've just said."  
(Tutor 5 Tape 11)

Whatever reservations might have been held on this score they did not appear to be serious enough to be insuperable. At the end of the sessions, all the six tutors involved expressed themselves sufficiently confident to try using the system for their students. None demurred or expressed a wish to cease involvement in the evaluation.

Each supervisory group was provided with a floppy disc containing all the MALCM system programs, each disc being labelled with the Group Supervisors and Tutors' names. These discs were kept in a disc box located in the Unit's main teaching room along with the microcomputer. Data security arrangements were as indicated at the beginning of this chapter.

#### 7.6 Assisting supervisors in SDO functions for first time users

The relatively simple business of entering tutor and student details into the system prior to tutor use was carried out by supervisors under the supervision of the Author. The discs were firstly 'primed' with blank student records by the system 'PRIME' utility. The 'System Data Operations' option was then chosen from the main menu and



supervisors entered details of tutors and students from their group onto the disc. No difficulty was experienced by any supervisor in doing this.

### 7.7 Guiding First Users in System Use

During the evaluation period, guidance of tutors using the system was largely carried out by group supervisors. The one group where this arrangement proved to be problematic was in the group run by supervisor 1, who left the job some two to three weeks after the evaluation period began. Her place was taken by a replacement, known here as supervisor 5, but this person, a lady in her thirties, did not have any acquaintance with MALCM system.

Supervisor 5 was introduced to the system, as fully as available time permitted, but was not in as strong a position to guide the tutors in her new supervisory group as closely as her predecessor might have done.

The next chapter continues the case study and deals with the post first-use evaluation.

Chapter 8: The Case Study - Evaluation

8.1 Introduction

Following the use of the system by selected tutors and supervisors over a period of several weeks, the author returned to evaluate the first use stage. All the printouts, (LCP's and SS's) for the current data were retrieved and stored for analysis and all the participating personnel were interviewed and the ensuing discussions taped for analysis.

Of the six tutors who had set out to use the system, all but one had made some attempt. The exception was Tutor 4 who, shortly after the start of the first use phases, left the work of the Unit altogether, as did her student. It was some time before her actual intentions were made clear to the Organiser and her supervisor, and it did not prove possible, in the time available, to select and train a replacement tutor for the first-use evaluation period. The author had no further contact with tutor 4 after the initial interview and training for use of the MALCM system.

A further complication was engendered by the replacement of Supervisor 1 by a new supervisor (5) shortly after the start of the evaluation period. This was occasioned by an increased day time teaching load being given to supervisor 4, necessitating her cutting down of evening work. Her replacement, who took over without any noticeable hiatus, none the less found herself unable to participate in any use of the MALCM system during the period of first use and therefore was unable to contribute any valid information to the evaluation. Her comments supporting this are available on Tape 14, Appendix III, but are not quoted in this thesis directly.

The details of the evaluation, including analysis of the Literacy Curriculum Profiles and the Supervisor Summaries are given below, together with conclusions relating to the particular aspect of system evaluation in question.

## **8.2 The Organiser - Post First Use Evaluation and Comments**

(All the material from this section is drawn from a transcript of Tape 2 in Appendix III.)

The first point of discussion concerned the nature of the Organiser's involvement in the first use of the MALCM system. To what extent had she been involved in it ?

"Directly, not at all, only through the supervisors and tutors. I don't have any daytime students using it in the centre at all... as far as organising it I'm happy for them to use it - messages are coming back and forwards about using it - I'm aware what's going on, without being actively involved in it."

Why then was she not 'actively' involved ?

"Partly time, and partly I'm not exactly convinced of the merits of using it - I'm prepared to give it a try, but it doesn't merit a lot of my time at the moment."

Had she then formed any further opinions about the system since her last conversation which would lead to her feeling that the system did not merit a lot of her time ?

"...What I'm not convinced about is the fact that it sets down one system for everybody to fit into, which goes against what I have done in the last three years in the unit, which is to encourage people - tutors and students - to develop a system for each student, covering the areas that you are covering here, thinking about them but not putting them down as categorically and not using one set

of language... So yes, it's valuable in that it makes you think about it, but I don't think - the format isn't adding up with any ideas for the figures for it... "

The criticism here is one of inflexibility, though the reference to 'one set of language' is a undoubtedly to the difficulty of the system terminology for users, a problem to be expressed widely elsewhere. It is interesting, however, to note the claim that 'it makes you think about it' which is highlighted as a positive result of use by at least one supervisor who found that the need to discuss the system led to a fruitful discussion of the work and teaching of a particular student, (Supervisor 2 Tape 8).

Further into the conversation, further, similar criticisms of the system emerged:

"... it's such a complete system - it goes through everything from being able to sort of see a shape and recognise it, that so many of them found irrelevant, and I feel that access to relevant parts rather than the overall, might be usable. It's presented in one big area - I think if it were mainly driven with access to early readers - post basic and extended readers - and you wouldn't necessarily see all of it. They would identify with that."

The criticism here is not so much that the system is extensive or comprehensive, but that it exposes too much of its range to the user and is therefore confusing and perceived as irrelevant:

"... even on one screenful, you have non-readers with perceptual ... difficulties as well as fairly extended literacy skills. I then feel that's bad practice, not so much from tutors... you'd never present a student with such an amount of material on screen though."

Interestingly, the Organiser is viewing the system very much as if it were for use by students. She was then asked to clarify whether in fact her current opinion was based on observation of the use of the system subsequent to her first recorded conversation. It should be noted here that from this point the organiser often stresses the difficulty encountered by students in using the system, and that their problems contribute to a fair degree to her opinions of it.

"... when I've seen people using it, the students aren't clear of the overall view - they haven't got a mental view of it - they're missing pieces of it."

It was pointed out that, in fact, tutors were intended as the primary users and generators of information in the system. Was her reluctance to be actively involved based on observations of their use of the system ?

"I think it's induced in some tutors a sort of - feeling of inadequacy."

When asked to specify a particular tutor to whom this had happened, the organiser did not actually produce an example, and simply expanded on the general point:

"I would say that overall, when people say 'MALCM' they say 'Oh Dear, I'd better read up. I'm not sure of that again.' - rather than 'Oh, great, I'm enjoying that.'

She then went on to shift criticism to the method adopted for developing and introducing the system, echoing strongly some of the themes stressed earlier in the references to Blumenfeld et al (ibid.)

"... I'd like to see more of the tutors and the students in the system rather than the system imposing itself on the tutors, which is why I feel that, if there'd been more involvement in the early stages, if you'd done what you're doing now as research, as sort of market research beforehand, I think even with the same system that it

would have gone down better than it is now, so I don't think it's the fault of the system - I think it's just the introduction."

Would she herself, then, have wished to be consulted or involved in this way ?

"Oh, yes, that whereas now - evaluating it - at that time I didn't. So you're designing it for your own unit really - you're the person who we had to consult and actually we did..."

The organiser is here referring to the time when the author was himself Organiser, before taking up another post, while she was one of the Unit staff.

"... Whether you can honestly say that the way you designed the system fitted in with the way that we worked at that time - your philosophy of working here - I don't know, but if you were starting it out now I would have appreciated some contact, because most of the learning is not based on skills - it's based on how people react to themselves and the things around them, so, to make it more potentially - more successful and acceptable, yes, I would have looked at the categories for which people were already working with their students and assessing



progress, and tried to work it in with that, and relate to it. If it's a cold and imposing system, however good it is, it is not going to be acceptable initially."

There is, firstly, a direct comment here that the system is perceived as a development conceived and produced without reference to the organiser's method and philosophy of working and is thus 'cold and imposing'. Secondly there is an implied comment regarding the perceived change in methods of working within the unit following the appointment of the current organiser. There is even, thirdly, an implied criticism that the system as constituted may not reflect the actual practices current in the Unit at the time it was produced.

All these comments underline the fact that the organiser as 'leader' of the unit, does not feel that she has been significantly involved in the innovation or development processes. Although it was difficult to quantify the effect of the Organiser's attitudes in shaping the acceptance, or lack of the same, in this first use stage, it seems likely that these would bear strongly on the probable success of introducing a system like MALCM into a small 'cultural' group like the ABE Unit.

Discussion next moved to the effect contact with the system might have had on the organiser's perception of the functioning of her unit or of her role within it. The question put was actually intended to explore whether there had been any shift in her perception of literacy and literacy teaching as a result of contact with the MALCM model. In the event, the answer was at a different level:

"I think it would make me very wary of things that come as a package, and making people mould themselves into that package, rather than saying 'Here's an opening in the package that you can see yourself fitting into' - which is... the whole philosophy... of what the ABE Unit has been for the last three years, and one or two tutors, I think, find it difficult to fit into this system, when all my training is evolved around developing a system with your student and you, that you can both work on realistically..."

The effect appears to have been to reinforce the organiser's view of the legitimacy of her own approach which she sees as being in direct contrast to that of the MALCM system. She goes on to characterise the system as being a reflection of past practices and at odds with more recent developments instituted by herself:

"... I think you've lost touch with what's happening in the Unit to a certain extent, and that in fact part of the training course involves a look at what is literacy - what is literacy full stop - what is literacy for you as a person, and the type of things - the framework, the areas of literacy which tutors are now encouraged to map out with their student - a route of literacy if you like, to which they should go and point out areas and times when they can assess, and they may assess on different categories to your list which, wonderful though they are, are slightly enigmatic to most people..."

In fact the approach being advocated by the Organiser here is not dissimilar to the intended use of the MALCM system and the slightly ironic use of the term 'wonderful' to describe the literacy skills and behaviours used in the system is in fact a criticism of terminology as a subsequent comment revealed:

"Well, it is an impressive structured list of the areas of literacy but, until you did your research, those never existed or were mentioned in the unit at all, and I know of no other unit in the country that uses that type of jargon. Now the jargon doesn't undermine the process, and I don't dispute that I'll leave the process. What I'm

saying is that you judged that the unit had no concept of what literacy was - had no framework - and it didn't, but it now does and it's not - "

In addition there is plainly a degree of resentment caused by a feeling that the attempt to introduce the MALCM system implies a lack of curriculum awareness or structure in the Unit which, if it were the case, is not now felt to be a tenable criticism since her appointment as Organiser.

What is emerging in the conversation regarding the Organiser's attitudes towards the MALCM system and its introduction is the fact that they are shaped as much, if not more, by her lack of involvement in system development and implementation as by her actual understanding and observation of the intention and usage of the system.

Subsequent conversation moved away from the MALCM system and its use and turned on discussion of the concept or 'framework' of literacy and its assessment and teaching that did now obtain in the unit:

"There isn't a documented framework as such - there's an awareness of categories that they're in, and an encouragement to look at what the student actually knows, so we don't - if the student comes in and can look and read a certain amount, and write a certain amount, we

don't start saying: 'Is that person able to visually see letters?' We don't take them back that far. We key in - so each tutor would have this support, we key in at the level that the student was at and then look towards the areas that they need to tackle and break down those areas, without saying this is the whole global aspect - this is where you fit in. They would become aware through the training of, perhaps, the areas the student had been through before they'd got to that level, but I don't see the need - a complex framework to be imposed. I feel that support is probably better in the type of unit we run - that you wouldn't get the tutors or the students to unite on that basis."

Who then, of those working in the unit, could be said to have a comprehensive knowledge of what is involved in being literate?

"I would say myself, the organiser and the tutors - the support tutors, the supervisors."

Was this knowledge anywhere made explicit or actually documented specifically for use in the Unit?

"Only in the form of - we catalogued our resources and we looked at that, but one of the training sessions is: 'What is literacy?' and anyone with any - would say 'Are you

literate ?' Well, if you're not, then you're not literate, it's a basic fact... I don't see any virtue in spending a lot of time with volunteer tutors in the development of the intricacies of preconceptual development of letter formations and things like that. I think that it's important that perhaps tutor supervisors have a greater depth of knowledge, but I think it's unrealistic to expect volunteer tutors to take on too much... for two hours a week. Nevertheless, some form, some sort of structure of their work is very important."

The implications of these last comments returned the discussion to the MALCM system, highlighting one of its major weaknesses which is detailed in the conclusions in chapter 9, in that it was perceived as demanding too much pre-knowledge from its intended users who were, for the most part, volunteers without extensive formal training, working at most for two hours per week.

The reference to the cataloguing of resources is interesting since it refers to an earlier activity undertaken jointly by the author and the Organiser, during a time towards the end of the MALCM system development, which aimed to provide a classification of literacy teaching activities in the unit as a basis for a computer database of teaching and learning resources.\_\_\_\_(The

schematic produced during this exercise is given in appendix IV as an example of a possible amended literacy curriculum model for use in a CBL system.)

It is possible only to speculate that the involvement of the Organiser in that particular field might have resulted in the taking up of the computer-based catalogue that the above remark and the author's own observations would indicate occurring. The organiser was next questioned as to whether her observation and experiences with the MALCM system had revealed any positive value for the computer in such a role in The Unit:

"I would absolutely love to take MALCM and re-jig it and make it usable, and there are lots of the supervisors who would like to do that, and I think in your terms they'd probably wouldn't be professional at it, but in doing so I think they'd make it work for them... I've never knocked the idea of the concept - it's just the format and the presentation."

This very positive comment encouraged a request for speculation as to the form of a 're-jigged' version:

"... I don't identify with the structure of MALCM - the semantics of it - I feel are inappropriate for our unit..."

Once again the criticism of the terminology is paramount.

"... but I've never knocked the use of a structured system - it's there to help people think and to help people record, but it would be just another resource. But I would never ever say to the... 150 students: 'This is the system for you to use to keep a record.' I would say: 'This is one way in which you and your tutor can keep track of what you're doing.' And I would like it to mean - what's the word - not opening a door on a skeleton system, so they could key in the categories. So in fact you've listed some of the categories, maybe some of us suggest to you - wanted to assess your progress on and the computer would work it out for you."

The organiser seems to have in mind here a system that could be regarded as consultative rather than quantitative and which would be used primarily by students as much as by tutors:

"Ours is a student-based learning environment, that's why."



What about the relative roles of a system regarding tutors and students ?

"I think if it was tutor access the students could see that it would... that myself and the tutor supervisors wrote in consultation with somebody else as a support to say: 'Look, OK, you've decided to look at these areas, but had you thought of these other areas which are crucial to someone's literacy development' - to enable the tutor to say: 'Oh yes' and then go back to the student and say: 'Well, perhaps we ought to look at this' - but not in a prescriptive way, more in a supporting way, and I think use of this ought to come in tutor training - it ought to be seen from the moment volunteer tutors come in as another resource, another support, so that, when they first get their student to become familiar with it, I think anything foreign or new that's not easily understood immediately is going to rock somebody's problems, and they become anti."

What is being envisaged here is a wider role for a 'consultative', non-prescriptive system. extending into tutor training and having a constant presence within the Unit.

The value or relevance of printed outputs from the system were discussed. Were these a useful feature that would bear retention in an enhanced or changed version ? The LCPs for instance ?

"Well, I didn't observe. I have had feedback from people who have said they liked having the printout - it was important, it's perhaps one of the most positive things from using it initially, that you've got something to take away and look at. I think that that's more important than you might think in terms of users wanting to return to the system."

Were the Supervisor Summaries as important ?

"I don't feel they are as useful as they could be, because we don't encourage comparisons with anything other than the person who studies... It's the sort of thing I discourage rather than encourage."

The positive feeling that the Organiser had towards the use of a CML type system in her Unit was underlined in the extensive response to the next point put by the author, which was a request for an outline of further features which might be incorporated into such a system:

"On a global basis, there would need to be some central part for the students to play in it. We would need to feel that the student was part of it; from the student you would then obtain his literacy aims which would be relevant, with back-ups for the tutor of information, so that in fact, you designed your own - if you like, from a selection. It shows what you're going to be assessed on, so that you didn't need to assess on whether you can recognise a letter. If many of your students - as ours are - can come in, can read and write, but they need to be helped with contextual clues in reading or in letter breaking down sounds - I feel it should be set so that the printout shows things that you want it to show - it doesn't show a whole lot of - a list of things that are irrelevant, so I want it to be more selective...

"Student input - I don't think it actually says as clearly as you intended it to, what the student can really do. It lists the skills, but it doesn't really allow for a written printout of what the student feels they got. Perhaps there's some element where they could key in comments and get a printout and call it back at a later date...

"Perhaps less numerical analysis and a little more verbal, to make it more student usable. I think you reach the stage where some of our students are certainly used to

things like that - our day time students - they would call it up, check their own progress, and even without a tutor would start to become involved in it, and the printouts that they got would form the basis of section most of my students 'bounce around' - which is called progress, planning, self assessment, which they could do regularly, but I think that if that was structured, they could get printouts for themselves which they could discuss with me - I would find that very usable...

"I wondered about the database - if it could be linked to a catalogue database."

Without examining these suggestions in detail, it is plain that the Organiser had been sufficiently stimulated by the existence of the MALCM system to consider how she might like it to operate and work. Her comments are valid ones, based on more than occasional speculation, that will be considered later in Chapter 9.

One final point was raised concerning the system. Had there been any positive value to the tutors or students involved in the first use stage ?

"Yes, I think it's made them aware of the structure, more of the structure than they had, because a lot of them don't have a - much of a structure. I think to many of

them, it introduced them to using the computer for something other than word-processing or general software. I think it also brought a few tutors and students together because they've both been quite bewildered by it - they've had to figure a problem out together. So there is probably some underlying value in that which might sound negative... I don't think that's a bad thing."

The final part of the conversation turned explicitly to the issue which had been implicit earlier, the general lack of involvement of the Organiser and Supervisors in system development:

"...If people knew you were developing this system, rather than seeing the system that was developed, I think they would have felt more involved... you can collect people's views and do a bit of market research and say: 'that's very useful, I'll take it into consideration.' They may not see it directly reflecting the system, it's still a positive link. But I think if people were aware of being developed, rather than having it developed, that would have set people on a different basis...."

Did she have any comments about the conduct of the innovation in her unit ?

"... I think the pre-introduction at times was important - I think it might have been nice to have had everyone together, to talk to everybody, rather than to talk to them separately... I think some of the initial reactions would have been more forthcoming - people would have had back ups, colleagues around them... if we'd been together, you might have been able to prime me a somebody to say: 'Has anybody got any anxieties about it?' - and allayed those fears early on, before they got too great..."

There is an obvious wish expressed here to have been involved in the innovation process.

Finally, a summary comment from the Organiser on her reactions to the whole project at the end of the first use stage:

"I think initially it was a bit of a nuisance, and I felt it tried - it grated on what we already had. But I can see the value of some sort of systematic use of the computer to rate planning, progress assessment, evaluation - that sort of thing. I still think it is valuable as a system - if it is adapted. It's proved less of a nuisance - I think the nuisance factor was that there was so many people who started to think that everything they had been trained to

do and think was no longer right, because they couldn't find anything written there that they related to, until it was translated."

The picture that emerges from this discussion is of an Organiser with positive views of the value of a computer used in a CML type role in her Unit who, unfortunately, has not been as involved with the introduction and first use stage of the MALCM system for two reasons. Firstly, her lack of involvement in the actual development of the system has inevitably distanced her from it and has led to her not identifying with its use or its fate. Secondly, her position as a post-holder succeeding the author, and her need to establish her own style of working within the Unit has inevitably led her to perceive the system as a 'relic' of a previous regime which cannot be allowed to interfere with her establishing her own. This impression re-enforces the ideas introduced regarding the Organiser's role in Chapter Seven.

In point of fact, her criticisms of the system are not radical and she seems to be in accord with many of its basic aims. It is not simple idle speculation to claim that a system developed with help and involvement of such a person would have a very strong chance of successful implementation in comparison to one, such as the MALCM system, which was not.

### 8.3 The Supervisors - Post First Use Evaluation and Comments

#### 8.3.1 Analysis of Supervisor Summaries

At some time between the original coding of the BASIC programs comprising part of the MALCM System, the ABE Unit changed its printer from an earlier model Epson to a more recent MX80FTIII version. This had the effect of rendering the histograms in the Supervisor Summary unreadable, due to the different graphics codes used by the two printers.

Additionally, the propensity for the printer to 'forget' previous type face codings when switched off meant that the intended fount was not always produced by the printer in Summaries after it had been switched on and off by users setting the top of the form. The only effect here was cosmetic but did raise some comment from users.

Other than this unfortunate chance, the Supervisor Summaries printed out accurately and as intended.



Analysis of the Supervisor Summaries shows that two supervisors, numbers 1 and 3, produced at least one printout. However, supervisor 2 did not seem to have accessed this facility at all.

A look at the skills weightings, as shown on a final summary produced by the author for this evaluation shows that over all three supervisory groups involved, skills weightings were produced for all students, with the exception of four, who, as mentioned earlier had left the scheme.

Table 8.1 summarises the skills weightings current at the time of the end of the evaluation.

<u>Student</u>	<u>Skill Level 1</u>	<u>Skill Level 2</u>	<u>Skill Level 3</u>	<u>Skill Level 4</u>	<u>Overall</u>
One	3600	2450	1832	3600	2870
Two	3600	3600	2398	3600	3299
Three	3600	2400	2343	2000	2585
Four	n/a	n/a	n/a	n/a	n/a
Five	2500	2550	1866	1600	2129
Six	1066	800	135	0	500
<u>Integer Mean:</u>	2873	2360	1715	2160	2277

Summary of Skills Weightings in Supervisor Summaries

Table 8.1

While there is a noticeable level of uniformity between the first students 1,2,3 and 5, it is noticeable that the ratings for student six are more conservative. This may reflect the fact that these were carried out hastily by the tutor involved at the last possible moment within the evaluation period.

It is also noticeable from tutor six's comments that her confidence in her student's abilities and personality is low, and these figures may also reflect that fact.

One other point of interest in these figures, bearing in mind that they reflect, numerically, not a genuine measurable quantity, but rather the tutors' subjective assessments of their student's abilities, is the relatively high figure for Skill Level Four, as opposed to, say level three. In two cases, 1 and 2, the figure is at maximum and matches that for level one.

The summary of figures from Behaviours Weightings in Supervisor Summaries is given in Table 8.2 below:

	<u>Student 01</u>	<u>Student 02</u>	<u>Student 03</u>	<u>Student 04</u>	<u>Student 05</u>	<u>Student 06</u>
<u>Social Context</u>						
One	168	n/a	0	n/a	n/a	n/a
Two	126	n/a	7	n/a	n/a	n/a
Three	164	n/a	0	n/a	n/a	n/a
Four	157	n/a	7	n/a	n/a	n/a
Five	147	n/a	0	n/a	n/a	n/a
Six	187	n/a	7	n/a	n/a	n/a
Seven	147	n/a	7	n/a	n/a	n/a
Eight	147	n/a	0	n/a	n/a	n/a
Nine	147	n/a	7	n/a	n/a	n/a
Ten	133	n/a	0	n/a	n/a	n/a
Eleven	147	n/a	0	n/a	n/a	n/a
Twelve	96	n/a	0	n/a	n/a	n/a
Thirteen	153	n/a	14	n/a	0	n/a
Fourteen	0	n/a	0	n/a	n/a	n/a
Fifteen	n/a	n/a	0	n/a	n/a	n/a
Overall	822		3			

Summary of Behaviours Heightings in Supervisor Summaries

Table 8.2

The salient fact to emerge here is that only two of the tutors, out of a possible five, found themselves able to venture to give any ratings for literacy behaviours.

It is possible to speculate that this may be because it was felt that a protracted period of time was necessary to build the behaviours profile. On the other hand, two tutors seem to have been able to give a fair range of ratings within the behaviours matrix reasonably rapidly. This may have been because they felt themselves more familiar with their students and their literacy experience; more likely it may be that the other tutors

found the task of giving ratings for behaviours difficult because they were unused to thinking about their work with the students in a contextually based framework.

A further factor to consider is that of the pressure of time and limits to access of the computer, referred to in taped extracts following. Since it is likely, because of the presentation of the system, tutors perceived the behaviours aspect of the MALCM system as the 'second' factor in the process of rating an assessing, then constraints of time may have meant that there was no opportunity to get around to giving behaviours ratings.

### 8.3.2 Analysis of Supervisor Responses

During taped discussions, all supervisors interviewed were asked the same questions, more or less in the same order, and their grouped responses are given below, together with occasional comments.

Firstly were there any problems in users reactions to the computer itself ?

"They are still, in spite of all I say to them, very worried about this computer. I don't know why. I... used to be at first, but I'm not at all now..." (Supervisor 2 - Tape 8)

"...The actual difficulty of getting it done in session, that's the first one.... I wouldn't envisage that problem would decrease as they got more familiar with it... because, obviously, one computer." (Supervisor 3 - Tape 4)

"... when they first start, they're usually thoroughly confused and don't go near it, but that doesn't seem to take too long to get round once they realise they cannot do any damage by pressing the wrong button, they're OK." (Supervisor 3 - Tape 4)

There was at least one observation that previous keyboard/terminal experience made use of the MALCM system easier:

"I think the actual practical use... (Tutor 5)... found fairly easy - putting things in - because she uses a computer and a word processor at work, so she is fairly familiar with what it can do and what it cannot do, and you know it's fairly straightforward to her to put things

in... (Tutor 5) ... had enough expertise to - if things go wrong, to work it out for herself, whereas other people are completely - ." (Supervisor 2 - Tape 8)

What about supervisor's own use of the system ? How did it go ?

"I've got three (SS's) there, which isn't many, but it's the time element, not because I don't see the point. I find it's very, very much of a rush. You saw how full the room was last week. It was probably fuller than average, but, having said that, I'll have to get around everybody as far as possible. That's the main difficulty."

(Supervisor 3 - Tape 4)

"I only did one... because since then we've not been able to get in because (a) we were on holiday, (b) we had the bad weather and (c) we had one day off because no one could get in and last night we couldn't find the disc."

(Supervisor 2 - Tape 8)

The terminology of the system, which had been perceived by supervisors as a potential hazard before first use, proved to live up to its predicted reputation:

"... I think there's the odd thing I suppose. It's a case of having a sheet with definitions of what you mean by certain things. There's just one I couldn't work, response or reaction, or something or other. But things like decoding, encoding and what-not, I think they need to have access to a definition - summarised list and an example, not just definitions." (Supervisor 3 - Tape 4)

" (Tutor 5)... found that she had to go away and read the information that you had given her, and then transcribe it into her own words and give herself a key, if you like, and what she did was sit down at home and work out on paper what she would do onto the computer... You might as well stick to the paper... she felt that it was so complicated that she couldn't go straight from her head into the computer, that she needed to work it all out on paper first and she is the one that had, as I say, the knowledge of actually doing it - she works it very quickly." (Supervisor 2 - Tape 8)

The assessment of understanding of the underlying concepts of the system was more favourable. Generally speaking, supervisors seemed to think that tutors did grasp and understand these :

"(Tutor 5)... definitely understood it, yes, as she is a bright girl. She definitely understood it..." (Supervisor 2 - Tape 8)

One supervisor suggests that some tutors improved in their comprehension of the system as time went on:

"They seem not really to fully appreciate... the technical, the definitions of the various literacy skills you're after. I think the picture of that does begin to come a little clearer as they go on and does, as I've said before, in fact make them think about it - about what you actually mean." (Supervisor 3 - Tape 4)

However, there may have been a difficulty in relating these ideas to their students:

"I think they understood the idea of that, even if they didn't understand the definition always... I'm not sure that they sometimes found difficulty in thinking: 'Well, I wonder how that would apply to him' - their particular student. I think they found those a little peculiar..." (Supervisor 3 - Tape 4)

Was there evidence that tutors found the literacy skills element easier to understand than the behaviour matrix, or vice-versa ?



"No she understood both of them." (Supervisor 5)

How useful or valuable to Supervisors had the printed Supervisor Summaries been ?

"There was one of the earlier ones from before - one bit hadn't been completed... but that's been put right. When I got the later ones in, with the histograms on, there wasn't enough information. We need more than just two columns to put things in, but in principle, I can see the point of that, if you have a full group... " (Supervisor 3 - Tape 4)

Reactions to the numerical information ?

"Well, I looked at the weightings, the breakdown on the back, and I was interested to know how you came upon those particular little formulae for producing the weightings... When I'm using numbers, I like to know what the numbers are doing, what they're for, and what they have come from... I am suspicious of numbers when I don't know what they're for. I feel like - as if a salesman is trying to flog me something - but I don't know where they come from or what they mean, so I wanted to know." (Supervisor 3 - Tape 4)

This is an interesting and perhaps commendable caution but in fact the derivation of the weightings is provided in the User manual which this supervisor had a copy of.

Supervisors' observations of the involvement of students in use of the system were discussed in the course of conversation, and findings here varied somewhat.

In one case, the student's reaction to the system, or the student's potential reaction to it, had an effect on its usage, since one tutor felt that she would have to come in at a different time to her normal group working evening in order to use it.

"... last night... (Tutor 6) ... was coming in on her own, because her student - she didn't want to do it whilst her student was there, because she said that her particular student is always very particular about what she is doing. If I ask to speak to them privately she wants to know and she's always afraid that she is being checked on, so in fact I think this student's afraid of - although she doesn't know about - this system... she was obviously very concerned about being checked on." (Supervisor 2 - Tape 8)

It was observed that using and developing a profile by means of the behaviours matrix was made difficult with one student whose general lack of interest and activities made expansion of the profile by Voluntary/Personal contexts more or less impossible:

"... she only seems to go to work and play bingo... (Tutor 6)... was saying 'I wanted her to do some work that was useful but she doesn't do anything.'... she'd decided to write a letter but she had no idea what to put, so she didn't really want to write letters, and there's nothing she really wants to write about... this putting in of hobbies isn't as easy as it would have been." (Supervisor 2 - Tape 8)

The supervisors interviewed were asked to make any suggestions for changes that might improve the system, based on their observations and experiences of its use.

One felt that the system seemed too prescriptive and was attempting to adapt students to itself rather than vice-versa:

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"...now we try and say: 'Now, how do the students fit into it?' without saying - I may be wrong - you may have done this - 'These are the students. What do we want? Let's make the programme to fit them'... a complete turnabout, in fact." (Supervisor 2 - Tape 8)

Another made a comment that reveals a weakness of the subjectivity of the ratings approach:

"... because there are four levels that they can put in of competency, if they start off thinking their student is pretty good at something and stick him at four, then there's no room for improvement and sometimes one won't. I think (Tutor 1) had a lot of fours for her particular student, and therefore it looks, after you've done it for several weeks, as if not a lot is happening. In fact there may be a lot of improvement.... possibly a greater range and a recommendation that they are not putting a maximum at the beginning, built into the program might not be a bad thing." (Supervisor 3 - Tape 4)

The suggestion here is for an extension of the range of possible ratings. The fact that Tutor 1 rated several categories as 4 immediately on her first attempted LCP seems to have left a feeling that no further progress was being made, even though there is explicitly stated in the user manual the fact that such a rating should indicate

the need for no further revision or work. Although the intention of the system was to direct teaching and learning effort to areas where ratings were low, the subjective interpretation of ratings seems here to have spread to the very interpretation of the 4 rating. The superficial suggestion that users should be recommended not to enter 4 ratings immediately is of questionable value: the underlying idea of caution in deciding on ratings until sufficient evidence is available is sound however.

Her colleague also made similar comments:

"Well, the thing was that it was subjective anyway - that someone else might give him - in fact I did look at what she had done one night and I said 'Why have you only given him one for basically a very simple thing ?'. Then it didn't sound a very good reason - well, I mean he is a very good reader and writes quite well. She said 'Oh well, I don't know. I thought perhaps he could make more progress.' But I said: 'He does recognise them - I would give him more'. I mean, we realised the that two people would in fact put in different numbers, so it remains a subjective thing." (Supervisor 2 - Tape 8)

"The other thing we both agreed on - that the numbering one to four doesn't really provide enough range... I think that if you were to use this system - it would need a wider range of, say, one to twenty, so that you could see some actual movement, because the progress of the student would be so slow that it cannot be measured on a scale one to four." (Supervisor 2 - Tape 8)

Screen presentation was perceived by one supervisor as being a problem for tutors, though she does exclude herself from this problem due to experience with computers:

"... I know that what comes on the screen is - it's similar to my kids at school - they don't know which bit to focus on. I don't think it always leads there, except if it's the 1,2,3 - it doesn't lead their eyes onto the screen down to the bit that they have got to respond towards. I watched one of them in particular... She was pressing the wrong button because she hadn't read it. It was as simple as that - she hadn't read what she was instructed to do - we all do that." (Supervisor 3 - Tape 4)

Note that this difficulty was perceived as common to all VDU use rather than being specific to the MALCM system:

"I think it's the VDU. I don't know, but I think it probably is." (Supervisor 3 - Tape 4)

This supervisor observed further difficulties in her tutors in responding to screen prompts and data entry in the Literacy Skills updating sequence:

"It's a matter of getting familiar with it - the bit where the arrow moves down the screen... They got in a tangle and somebody got halfway through putting something in and lost it completely... Not that it wasn't logically presented because it was." (Supervisor 3 - Tape 4)

Several suggestions concerned the giving of advice on Unit resources:

"I think if you went on with any system like this, the thing that most of the tutors would want - I think it would be a good thing - is that, when you have recorded that they may have made progress in something, or that they haven't made progress, is where to find, where to go for information to help them with the area in which they are at a standstill." (Supervisor 2 - Tape 8)

and:

"Well, I think when they come up with the information as to where they should go next, it isn't specific enough, so if it was say, able to link up with (the resources catalogue used by the Unit) - collating all the materials, how it's coded - according to - colour - coded this way etcetera. I know that's probably complicated and sophisticated, but if there was some means of indicating like: 'Look for books with the red code to solve this problem' - something like that - then the tutors will see. At the moment it seems to be an academic exercise which they are helping with, rather than something that is going to be useful to them. I don't see why it shouldn't be useful to them if it was extended." (Supervisor 3 - Tape 4)

This last is an extremely interesting and perceptive remark and indicates quite accurately the feeling with which the MALCM system was received within the Unit, particular at Supervisor and Organiser level.

On supervisor felt that a useable system would have to be 'simpler':

"... I do think that if we're going to have some system, particularly on the computer, it must be much, much simpler than that." (Supervisor 2 - Tape 8)



Did she mean superficially simpler to operate or simpler in overall concept ?

"I don't know, because I think the more you do it, the more you realise that - realise how complicated it is and, if you're going to introduce a very complicated thing, perhaps you're giving too much information - too much for them... (the tutors)... to deal with... I think practically what they see on the screen needs to be much simpler. What they read on the screen needs to be much simpler... it's a complicated thing. I don't know how you'll make it simpler, but I think it will have to be, to use it." (Supervisor 2 - Tape 8)

The supervisors interviewed were asked whether, over all, they felt that use of the system had positively valuable or useful to the tutors using it.

They gave evidence that use of the system brought discussion of aspects of literacy to the fore that might otherwise have taken place, though the discussion arose from difficulties experienced by tutors in using the system and was perceived by the supervisor as being an unintentional effect of its use:

"... it provoked quite a lot of interesting discussions after they had had a session doing that - trying to fit it in, having had difficulties on two occasions. I can remember we sat down and talked about it, and they said: 'I just have no idea what he means by this' you see. I think it was to do with levels of comprehension. I sat and chatted with them and gave them three examples of what this type, that type and the other type was. So, from that point of view it's good, because you get more interaction between your supervisor, but I know possibly that that was not what the intention was - but that's a spin-off though." (Supervisor 3 - Tape 4)

"Well, the thing was that it was subjective anyway - that someone else might give him - in fact I did look at what she had done one night and I said 'Why have you only given him one for basically a very simple thing?'. Then it didn't sound a very good reason - well, I mean he is a very good reader and writes quite well. She said 'Oh well, I don't know. I thought perhaps he could make more progress.' But I said: 'He does recognise them - I would give him more'. I mean, we realised that two people would in fact put in different numbers, so it remains a subjective thing." (Supervisor 2 - Tape 8)

and:

"We all have hours there to discuss things with, but she never actually thought about it, but suddenly brings it to my attention: 'Are you doing this or is he coping with this?'" (Supervisor 2 - Tape 8)

Supervisor 3 also gave evidence of the MALCM behaviours matrix being used in decision making about session planning:

"... there was one occasion when (Tutor 1) said 'We've been doing so and so but it says on here... so I think I'll try...' I think it was Law or something, but I can't remember the actual topic. On one occasion I do remember she did consider another area, which possibly was an application which she might not have done. I would say this - I wouldn't like to stress it - there was something there." (Supervisor 3 - Tape 4)

The issue of whether the MALCM system made the tutors think in a structured way about their task brought only a vague and non-committal reply from one supervisor:

"I'm inclined to feel that... teachers and tutors lean to one or the other intuitively and... basically you can't alter them an awful lot... I think that's a personal thing really." (Supervisor 3 - Tape 4)

Had supervisors observed tutors involving students in using the system ?

"Yes, both of them. We had them sitting next to them while they put it in... One of them sat through the first session at every stage, discussing what she was putting in and why but I think after that he (the student) just lost interest and wanted to get on with some work and she just fed him the information. I think they definitely ought to have the opportunity if they want to participate."

(Supervisor 3 - Tape 4)

This is evidence of a not unsurprising lack of student interest or endurance.

Did supervisors think there was an overall value to tutors in having a computer-based system like MALCM in an ABE Unit ?

"Yes, if the facilities were a lot better, ie: it wasn't the only computer, and a computer could be left with that on for them to go to as and when it was appropriate."

(Supervisor 3 - Tape 4)

This underlines a comment elsewhere from this supervisor that lack of access was a problem.

"... I'm all for any kind of aids that are, in the end, going to be - if something is a bit of a struggle at the beginning, I don't think that's any good reason for giving it up, because I'm all for any kind of technological aids - anything at all like that - because it saves a lot of time, tapping things out on a keyboard - it's a much easier way to keep records, once people get tuned into this kind of thing..." (Supervisor 3 - Tape 4)

This is an optimistic comment which reflects this supervisors positive feelings towards the use of the computer as well as her experience in computer usage and applications.

Did supervisors feel that tutors perceived themselves as getting anything of value from the system ?

"... I think they probably did feel that they weren't getting enough out of it for the time they spent on it, let's put it that way, but I would assume that, if they became more efficient in using it, they would eventually see that it was of some use." (Supervisor 3 - Tape 4)

"They get the impression they're being asked for information but they don't get the feeling necessarily that that information is going to help them do their job any better." (Supervisor 3 - Tape 4)

Will stopping use of the system affect the tutors way of working at all ?

"I don't think it would actually. There might be an effect from having used it, having had to think about the various aspects, but I don't think it would affect the way in which they got on with what they are doing." (Supervisor 3 - Tape 4)

Finally, the supervisors interviewed were asked whether they felt that use of the system had brought any positive benefit to themselves:

"Well, I don't think that I've had enough... students using it, enough time for me to get programmes out to know whether it will work, to enable them to be of great value. To answer that, I'd have to have much more time to answer...." (Supervisor 2 - Tape 8)

Supervisor 2 made the point that the stable nature of her group, in terms of change of personnel, and the fact that, as a result, she and her tutors knew the students very well, made the MALCM system less useful than it might have been:

"I'm very fortunate, I've had a very stable lot of tutors and students - they've been together, most of them, a long time, so I feel that I know them all quite well anyway... if, in fact, I had a more shifting population, I might find something like that more useful." (Supervisor 2 - Tape 8)

Had use of the system changed supervisors' perceptions or conceptions of their role and job in any way ?

"Yes I think so. Well, it's emphasised things I really knew, but sort of re-inforced things that - working on certain skills - they're more in the second half... (the behaviours matrix)... about why you're doing it, about why you're working on particular skills, what you want people to be able to do... " (Supervisor 2 - Tape 8)

"I can't separate the MALCM system from the experiences I've been gaining anyway, in the job I've been doing, but I wouldn't go back to the way I taught the first student, I wouldn't go back and teach like that again." (Supervisor 2 - Tape 8)

"...I think the introductory talk you did... might have subconsciously made me think that I needed to sort out a system in my mind." (Supervisor 5)

Concerning the concept and experience of trying to relate individual student centred teaching to an overall curriculum map, is it desirable in an ABE Unit ?

"Yes I think so, because I think a lot of tutors come along with the idea that they are simply going to teach their students to read and write simply for the sake of them being able to - them to read words, but reading - there's so much more to reading than being able to speak the words..." (Supervisor 2 - Tape 8)

#### 8.4 The Tutors - Post First Use Evaluation and Comments

##### 8.4.1 Analysis of Literacy Curriculum Profiles

The same defects involving the change of printer and the switching on and off of the printer noted under Supervisor Summaries were apparent in the printouts for Literacy Curriculum profiles.

In addition, one apparent bug in program coding meant that suggestions for learning objectives which were made following the literacy behaviours matrix were incomplete. Either the objective itself was given, or the social context, but not both. This was not a bug that emerged during testing of the system.



Otherwise printouts of Literacy Curriculum Profiles were as intended.

A glance at the appropriate Supervisor Summaries shows that number of LCPs printed per tutor was as follows:

<u>Tutor</u>	<u>No. of LCPs</u>
1	5
2	6
3	2
4	n/a
5	1
6	2

Table 8.3

Number of LCPs per tutor

The greater number of accesses by far is in supervisory group 1, possibly reflecting the greater involvement of that particular group supervisor, but also probably reflecting the more coherent nature of the period of use by Group 1. This point is dealt with in some more detail in chapter 9.

#### 8.4.2 Analysis of Tutor Responses

During taped discussions, all tutors interviewed were asked the same questions, more or less in the same order, and their grouped responses are given below, together with occasional comments. All tutors were interviewed separately, except for tutors 1 and 2, both from the same supervisory group. Extracts from Tape 10, which records this particular session, occasionally reflect a dialogue between the two.

The first point of discussion concerned the practical, logistic facts of life in using a computer-based system in the working environment of the ABE Unit.

The time taken to use the system presented some tutors with problems:

"It takes rather a long time to put everything through, and because there are so many of us wanting to use the computer in that one room, we do 'bits' usually." (Tutor 2 - Tape 10)

"That's right. You can't really hog the thing for an hour - to use it regularly as well, you see, that's difficult." (Tutor 1 - Tape 10)

However, another found the opposite:

"... I didn't really like to have to leave the student too long, that wasn't a problem, provided you knew the information you wanted to put in. The system was such that it wouldn't take very long." (Tutor 5 - Tape 12)

Initial usage was sometimes a problem, especially if the supervisor did not set up the tutor menu first:

"Well, the first problem I had was remembering how to get into the system... she (the supervisor) didn't set it up on this particular evening - we had one or two difficulties but we did finally get into it. Once we did that was all right in fact. I found after that, in respect of using the computer, it was pretty easy to follow, because it told you what to do next, that sort of thing." (Tutor 5 - Tape 12)

One tutor (Tutor 6) felt unable to use the system when her student was present. Interestingly, because she had no chance of further access, she ran her own 'manual' version of the system instead:

"... I've been making notes during the weeks - thinking that when I get on the computer I'll put it in." (Tutor 6 - Tape 13)

There were one or two problems caused by misplaced or wrongly identified floppy discs:

"... That was one that came out wrong anyway - some even got lost on the discs - you know the discs got confused... We were using the wrong disc... couldn't understand it, because I'd put all these numbers in to a previous one then I got that one and it only did the first three and there was nothing on the next one and they should already have been there. Then we discovered it was that disc - I think it was the one that you had used as a sample when you first really came to us." (Tutor 1 - Tape 10)

"It was sort of unprofitable." (Tutor 2 - Tape 10)

The desired frequency of use of the system was somewhat problematic, as highlighted by Tutor 3:

"... I can imagine with this that, with someone like ...(Student 3)... gaps of four weeks are perhaps too short, and, on the other hand, if you come back after six weeks - after six months - whatever's appropriate, where there would be a marked difference, you would have probably forgotten quite what was going on, and he would be scaled down because of that. So in many ways, it may be

better to come back every month and just go through it with no change, and then, perhaps, he might notice the change..." (Tutor 3 - Tape 15)

This highlights one of the difficulties with the system as it stands: it is sufficiently complex to need fairly frequent use to maintain familiarity. Unfortunately, some of the students in the ABE Unit do not make sufficient progress to make such frequent accesses of the system necessary, and users are therefore faced with prospect of repeated access without new ratings, or infrequent usage and partial understanding and familiarity with the system. The addition of extra functions outside of rating might alleviate this problem.

Tutors were next asked to express any anxieties they might still have at this stage regarding the use of a micro-computer generally.

"I'm not too keen on computers. I'm always frightened that I press the wrong keys and the whole thing goes. Maybe if I was a bit more used to computers and stuff like that... when you access, and you've got that list and put the gradings down, a couple of times I've forgotten to press RETURN and I've got myself confused and had to start again." (Tutor 6 - Tape 13)

Despite this, there was optimism about the effects of regular use:

"... I'd get used to it. I think, as you use the computer, the more you get used to it - I've maybe rushed through it, not being used to a computer." (Tutor 6 - Tape 13)

When asked about the advantages of using a computer-based, as opposed to a manual, system one response was to perceive its value in terms of supervisor and organiser:

"I think it would have been just as simple for us personally if we'd had a list that we could have ticked off - put a number in or whatever. But I think if you want to store it so that you can get at it, or... (Supervisor 3 and Organiser)... can get at it when we're not there, then it's a good idea." (Tutor 1 - Tape 10)

When specifically asked if the use of a computer system had benefits for the tutor using it over a manual system, Tutors 1 and 2 gave a negative response:

"Not really, no." (Tutor 1 - Tape 10)

"Only for somebody else's benefit." (Tutor 2 - Tape 10)

This was qualified however:

"If there was a standard sort of thing to work through, yes." (Tutor 1 - Tape 10)

Following the generally expressed disquiet that was evident in material recorded before the first use stage, had tutors experienced any difficulty in dealing with the MALCM system terminology. The following tutor's remarks express the general feeling of confusion and the unclear nature of her expression of her difficulty perhaps unconsciously reflects the problem.

"I found it, I did honestly, I found it very difficult to follow. Some of the language, the wording that you used in here as to distinguish between - a rare recognition as subarray for the translation or whatever. That kind of phrasing too, really - that's nearly too detailed, if you know how I mean there, to get the meaning between the two - to mean decoding is to decoding and it's nearly all in one - to break it down into all those little bits, even I really couldn't understand it." (Tutor 1 - Tape 10)

The same tutor expressed a contrary view of the system as being insufficiently detailed elsewhere (cf: remarks made by the Organiser and recorded earlier in this chapter),

suggesting that the emphasis of the system was at odds with her particular concept of the task of teaching her student.

A similar feeling was expressed by another Tutor who resorted to a self produced glossary to help her:

"... I've made some notes on it, but what I did was, I had to read the notes more than half a dozen times, and even then I found that I still had to refer back to them all the time... I noticed at first, in the introduction, it says that - it describes the system as simple and non-alarming. Now I don't know whether that just refers to the computer, or whether that does really refer to the whole system, but I find it very alarming and not at all - not very simple.... the terms that were used like 'sound input discrimination', 'sub-array-phonemic translation' didn't, even after reading the explanations, sort of click." (Tutor 5 - Tape 12)

One tutor also experienced difficulty with the terminology but ascribed this to his own shortcomings:

"Well, I have to use the glossary at the same time - the faults are mine rather than the program. I'm not very good at that... " (Tutor 3 - Tape 15)



Allowing for the confusion and difficulty experienced as a result of the system terminology, how had tutors coped with the underlying concepts of the system and its structure ?

"I would have thought it was a structured sort of scheme that you can record and assess progress with. That's what I thought it was going to be, but I haven't found that it is so, especially when you get somebody like..(her student)..who's quite good anyway. Once you've put a number four in, you can't go any further, can you - further than that for a lot of things - I didn't find it very satisfactory...." (Tutor 1 - Tape 10)

There were criticisms of the Literacy Behaviours concept:

"... I can't see the literacy behaviours check - we were really thrown by that one, weren't we ? (Tutor 1 - to tutor 2 - Tape 10)

"Yes." (Tutor 2 - Tape 10)

"... you see, to me, all these different groups that you have down here - group relationships, domestic, home, education, training, whatever they are, - if you can comprehend simple instructions in one thing, you can

comprehend simple instructions in the whole lot surely. You can comprehend simple instructions, full stop." (Tutor 1 - Tape 10)

This comment rather misses the point of the literacy behaviours check being a record of experience as well as of ability, though the tutor was prepared to counter this criticism:

"I should think that anyone who has reached the age of twenty-five or whatever can get the aid they want from the technical college - at home, has been to school, has... been to the doctors - they'd all at that age, surely have they not ?" (Tutor 1 - Tape 10)

The feeling here seems to be that type of students using the ABE unit will have had experience of literacy tasks in a whole range of areas because of their relative maturity. This still does not ensure that there is a record of successfully encountered literacy tasks in these areas.

There were further criticisms of the literacy behaviours aspect of the system:

"So we just didn't like the way that was set out - going along the top end of that, having read the booklet, we managed to grasp it eventually - what you meant by this -

several factors and concepts... We can't quite understand what you mean by appreciate and enjoy - do they appreciate and enjoy consumer matters ? What would they appreciate and enjoy about - you mean to read and to understand - they can read and they can understand. Is that not simpler language than saying appreciate and enjoy ? I don't quite know - " (Tutor 1 - Tape 10)

Although rather unimaginative in its literal interpretation of the behaviours matrix this is a valid point and suggest that users of the system should have been encouraged to use their own discretion in interpreting the matrix.

One particular objection was made to confusing terminology used in the Literacy Behaviours concept:

"... for instance, with the particular thing listed here: 'comprehend simple instruction'. I found it hard to apply that to my student because he particularly has problems with spelling, as opposed to reading, and I seem to associate a lot of these categories with someone who has a problem with reading... I understood that to mean whether you can react on seeing something like 'push' or 'pull' to open doors. I don't know how to turn that around in such a

way to... relate to whether he can actually spell the words 'push', 'pull' or - I don't know whether I've got all that wrong..." (Tutor 5 - Tape 12)

At least one tutor found that the extremely slow rate of progress made by her student made the width of the model largely irrelevant:

"... what I'm able to do with her is just like one (meaning level 1 in rating), it's very basic. At the moment, she's just like one on everything, you don't get any variation... Sometimes, at the end of a session I think 'Oh, great, she's learned that, I could maybe update that a little bit', but the next week, as soon as you do it again, she's gone and forgotten it." (Tutor 6 - Tape 13)

Some attention was paid the system printouts - experiences and opinions varied as to whether LCP's were useful. Tutor 1 found the revision suggestion somewhat unnecessarily obvious:

"As to what ? What I've got here you see - revision topic is spelling pattern checking - well, I know because that is what we're talking about. What we are working on all the time - " (Tutor 1 - Tape 10)

Despite an initial negative reaction by this tutor to LCP revision suggestion, it became apparent during conversation that in fact the suggestion on the LCP had produced the stimulus for some productive work:

"... I knew what I was revising in any case, and I did follow this one through. It sort of said present facts and concepts in the context of the law, so we did discuss an aspect of the law and had a great time arguing and writing it down. We did follow that one up, I suppose... we got quite a nice piece of writing out of it... " (Tutor 1 - Tape 10)

Another tutor found himself unable to follow up suggestions given on the LCP but felt that more detailed suggestions and ideas to try might be valuable:

"... when we went to the printout at the end, it suggests the next thing to go on to - again this is nit picking - perhaps a few suggestions of what one might try. I don't know whether that's a fair criticism or not, in so far as I've never been able to take you up on these." (Tutor 3 - Tape 15)

This ties in with the more detailed suggestions made elsewhere, particularly by supervisors, that suggestion for resources to use in teaching would be desirable.

There were occasional defects, presumably linked to defective program coding, in the LCP's:

"Then the student's next learning objective was appreciate and enjoy in the context of - and it didn't put anything in there. I don't know why." (Tutor 1 - Tape 10)

One tutor wished to know the reasoning or rationale behind the suggestions for further work given at the end of an LCP:

"... I wanted to ask you something about that, because I noticed that - what I did was, when I put in something in relation to that, that applied to my student, and at the very end, where it says revision topic - there, it says use of context evidence - I just wondered why, in particular, it chose that one, when I could be relating it to - for a lot of them..." (Tutor 5 - Tape 12)

In making this comment this tutor is highlighting one of the limitations of the system, in that it can make recommendations but is unable to explain to the user why and what basis the recommendation is made.

Tutors were next asked about the involvement of their students in the using the system. Was it possible and practical ?

"Yes. We started off didn't we ?" (Tutor 1 - to Tutor 2 - Tape 10)

"We decided that we shouldn't put anything on the computer unless the student was actually there so - help us decide what grade to put in... and that's what we did." (Tutor 2 - Tape 10)

What were student reactions to this ?

"Now he just comes and looks at me on the computer and says: 'I'll go and get on with something'" (Tutor 1 - Tape 10)

"He knows I'm doing it, and I've tried to explain what it is, but he wasn't so interested." (Tutor 3 - Tape 15)

Tutor 3, unable to involve his student since their tuition took place out of the Unit at the student's home, wished that it might have been possible to involve him more:

"... it would have been better too if I could have got... (Student 3)... to be more interested - in the centre - if we'd both been working up here - he might have had his own components to make and it might have helped him to think more constructively about literacy." (Tutor 3 - Tape 15)

One tutor found herself unable to involve her student at all, and thus was practically unable to use the system as intended:

"The trouble is I can't use it during the lessons. I can't get in any other time, and I don't like - I can't use the computer when she is there because she will see what I'm doing, and I think that, if she thinks I'm checking on her - you know what I mean - she's going to get worried that I'm trying to put her off. So I'd rather she didn't see what I was doing." (Tutor 6 - Tape 13)

This negative feeling was based in an uncertainty about the student's likely feelings and lack of confidence in herself:

"Not when she's just started - later on when she's got a bit more confidence, but with her just starting, at the moment... If she could build confidence, if she thought it



was keeping track on her - she sat thinking she should be able to do this by a certain date, I think it might bother her." (Tutor 6 - Tape 13)

It is noteworthy that this unwillingness to involve the student did not seem to be based on any discussion with the student herself. Additionally the tutor seems to think the student would perceive the system as a method of imposing schedules on her. Again, no attempt seemed to have been made to explain the real nature of the system to the student, which might argue a lack of grasp of its intended function, vis-à-vis the student, by the tutor.

On tutor was unwilling to involve her student in the use of the system because of her lack of confidence in her own understanding of it:

"No, I didn't. (Student 5) was away when I was using this system on a trial basis, just to try - I didn't know how far I was going to get with it. I felt that I couldn't honestly show him the write up that I had, because I couldn't understand it, so I didn't think he would be able to, and I didn't want to show him the printout." (Tutor 5 - Tape 12)

The same tutor also had misgivings about the effect on her student of knowing that rating was taking place:

"... I just felt that, if he got - if he knew I was working a rating scale - he might not have liked that."  
(Tutor 5 - Tape 12)

As with Supervisors, Tutors were asked whether they could suggest any changes and improvements to the system in its present form.

One tutor found at least part of the model insufficiently detailed for her use:

"...When you get something like spelling pattern checking, that's very vague. You can put down well, yes, he can do it or he can't do it, but he can't do everything - he doesn't recognise all the spelling rules or spelling groups - so until he can recognise all of them you can't put down... it needs to be set out in the spelling pattern, so you can tick them off or whatever as they work through. I know that's even more complicated isn't it? Then you're bringing more into it but this is really too vague ..." (Tutor 1 - Tape 10)

There was a feeling that explanations and prior instruction in the use of the system were inadequate preparation for its use:

"What we're trying to say is that some of the explanations were a little bit vague and, had you given - I mean, we got it in the end, didn't we? We read the book and we talked to..(Supervisor 3)... and the instructions are simple enough but some of the other things a lay person - a person who hasn't had a lot to do with teaching before - wouldn't at all." (Tutor 1 - Tape 10)

There was a feeling that the use of simple examples in explaining the system would be valuable:

"An example such as 'SHUT THE DOOR' they you give in one case - what it needs is something like that in English."  
(Tutor 1 - Tape 10)

"Yes, oh Yes." (Tutor 2 - Tape 10)

The suggestion of a link to a resources database evoked extremely positive responses:

"That would be lovely." (Tutor 2 - Tape 10)

"Yes, that would be lovely. It sort of said, you know - they need to represent facts and concepts in the law - have a look at such and such - a book or get something from there especially - we aren't experienced with what's there." (Tutor 1 - Tape 10)

The 1 to 4 grading system came in for criticism as in the following short dialogue:

"... Also, didn't we find that the grading down to five was..." (Tutor 2 - Tape 10)

"... Grading down to four." (Tutor 1 - Tape 10)

"... was just totally..." (Tutor 2 - Tape 10)

"You need at least five." (Tutor 1 - Tape 10)

"Twenty would be better." (Tutor 2 - Tape 10)

Part of the dissatisfaction was the need to have a balanced mid-point in the grading scale:

"A middle one we wanted - what are they ? We've forgotten what the grades are." (Tutor 1 - Tape 10)

The suggestion for a 1 to 20 scale was a half serious one:

"Well, I was just joking actually." (Tutor 2 - Tape 10)

"I know what she means. When you get something like the spelling pattern checking - that's where you could put in three letters - consonant blends, vowels... that kind of thing..." (Tutor 1 - Tape 10)

Tutors 1 and 2 spotted, correctly, slight inconsistencies in the way the gradings were defined at different parts of the system and in the documentation:

"Word them for me - put them into words, into our jargon. It isn't quite that is it? It's not the same on the disc as it is here.... You've got absolute beginners - starting to make progress - quite good - perfectly competent... It's different to that, isn't it?" (Tutor 1 - Tape 10)

One tutor found the grading system somewhat difficult to reconcile with the inconsistency of his student's performance:

"... I can see what you're trying to do with it, but, with... (Student 3's)... particular problems... I can't quite relate what's going on to him... in that I could probably say, score three except on Tuesdays there are certain things he can do that, for some reason, he has stopped doing them and started again... I completely non-plussed for scores on this kind of thing." (Tutor 3 - Tape 15)

This tutor found difficulty in committing himself to giving a 'four' rating because of his uncertainty as to his student's performance. At the time he was discussing 'Single letter recognition':

"... That I've got down as three before because, for all intents and purposes, yes, he can recognise single letters - I would hate to say that he could do that all the time, and I suspect he'll never get past three, but for all intents and purposes, it was four. I've put down three because I wouldn't like to commit myself to four... this is him, you know, not the system."

(Tutor 3 - Tape 15)

This problem might be construed as stemming from the tutors being in a position of having to fit the student to the system, a criticism made elsewhere by the Organiser and by Supervisor 2.

Despite these difficulties, this tutor, unlike some of his colleagues, saw no virtue in a stretching of the grading scale:

"What probably happens is that, given a grading of one to ten, people will do it in jumps of two. I think it is probably as good as any... "(Tutor 3 - Tape 15)

Several remarks indicated that sufficient interest had been generated to conceive of an improved system with interest:

"I'd like to see your mark two version... But I think it needs to be simplified really..." (Tutor 1 - Tape 10)

"I've thought about this. The only thing I could think of really, to improve on it - your work on it - the way you can do this is to actually sit... (Student 3)... at the thing and have him doing things, and have the computer assess various skills that he is doing. Even then it would depend on which day of the week you'd got him !" (Tutor 3 - Tape 15)

Finally, tutors were asked if they felt that use of the system had brought any positive benefits to them. For instance, was the MALCM literacy model useful at all ?

"I think it would be, yes, I think the idea, you know - I like the skills, despite the criticism." (Tutor 1 - Tape 10)

One value of using the system was that it appeared to concentrate user's minds on issues that they may not previously have thought about:

"What it does help me to do is actually stand back from what is going on, this sort of thing - constructively about the whole range of literacy and perhaps what might be worth looking at, and keep in the back of my mind what might constitute literacy." (Tutor 3 - Tape 15)

and:

"... it's certainly helped me to sort of sit back and think., and perhaps write more to some things than others, perhaps give a look at the priorities in looking at things that might crop up." (Tutor 3 - Tape 15)

and:

"It has given me an explicit one - more than I had before. I think I will probably continue to use something like that." (Tutor 3 - Tape 15)

and:

"Well, things you sort of take for granted, you sort of work out now... it makes you look into things more." (Tutor 6 - Tape 13)



"... I think it has made me think more about the concept of literacy, and you know, as I say, although the definitions of each of the abilities I have found hard to remember and use and relate to, I thought initially when you explained them, that there was a very good definition of the whole concept of literacy..." (Tutor 5 - Tape 12)

Following use of the system, would tutors continue to use any of the concepts involved in their literacy teaching ?

"Yes, I'll continue to use some, if not all, of the concepts. It's not because I reject some of them, but that I can't guarantee that I would remember all of them - in terms of things to aim at and things to look for when I'm teaching, rather than just the basic right letters in the right order... " (Tutor 3 - Tape 15)

"I think if I kept reading that it would always remind me of what the different aspects of it are." (Tutor 5 - Tape 12)

This concludes the examination of recorded material from participants in the Case Study. The next chapter, Chapter 9, draws some conclusions about the conduct and limitations of this particular case study, prior to wider scale conclusions regarding the system itself.

## Chapter 9 - Conclusions

### 9.1 Introduction

This chapter concludes the thesis by discussing in turn the planning, implementation and evaluation of the first use stage of the MALCM System. A brief review of recent reports of any relevant developments is provided before some final conclusions are drawn about the system itself and its potential for further development.

### 9.2 First Use Stage: Planning and Implementation

A major problem that emerged during the first use stage involves the variable commitment of users to the system and of their accesses to it. No encouragement or pressure was applied to users during the first use stage. The author intended to keep a physical and social distance from the users while this was under way. This was a deliberate decision taken to allow for as natural a usage of the system as possible so that evaluation would focus on the system itself, rather than the author's abilities as a proponent of his own creation. However, this seems to

have to have left the evaluation of the system to the vagaries of the varying degrees of commitment of supervisors and tutors.

Consequently, whereas in supervisory group one, a relatively high number of accesses was performed and the supervisor kept a conscientious watch over the use of the system and was quite well involved, in other groups, particularly in 3, which underwent a change of supervisor, the lack of supervisor involvement or commitment has resulted in tutor's usage being motivated largely from within themselves.

This seems to emphasise two further important considerations, one relating specifically to the MALCM system itself, the other regarding the development and implementation of any system of this nature.

The first is that MALCM system does not seemed to have generated sufficient momentum for itself in introduction and use to make tutors gain in confidence and understanding of it by usage. This opens up questions relating to the design and concepts of the system and will be dealt with in the conclusions regarding the system itself later in this Chapter.

The second is that it would appear necessary, in order to gain a valid evaluation of any such system, to involve key 'leadership' figures in system development in order to secure their genuine commitment to system evaluation. In retrospect it should not, perhaps, appear surprising that an individual fails to muster enthusiasm and commitment for the systematic evaluation of any innovation if he or she does not fully comprehend the rationale or purpose of that innovation, and can perceive no apparent benefit from its adoption. When that individual is a key person responsible for guiding and motivating a potential group of system users, then the effect of non-involvement is likely to be as experienced in this exercise.

Goodwill and verbal acquiescence are no substitute for genuine involvement; given the pressures of running a group and the demands of other tutor student pairs, it is understandable that a supervisor might be content, if not relieved, to leave the use of the system and its interpretation to individual tutors. This attitude is quite precisely expressed by both the Organiser and Supervisor 1 in chapters 7 and 8.

Would it then have been more effective an evaluation if the participation and involvement of the author had been more than merely instructive and passive ?

The problem here, as indicated before, is that tutors may well have felt an obligation to use and pretend to understand the system in order to placate and keep at a distance its obviously committed author. In addition the proximity and close involvement of the author and his view of the system might well have inhibited the expression of alternative views of, and criticism of, the system.

On balance, it is not unreasonable to postulate that the degree of commitment and involvement of those evaluating an innovation is in direct proportion to their degree of involvement in its development and planning. Involving the sole author of a system is irrelevant and unhelpful in the light of this fact.

Another major criticism of the first stage evaluation planning and implementation can be directed at the lack of careful monitoring of the time of the first use stage and the disparate periods of usage between supervisory groups.

Group 1 carried out their usage over a period of two to three months during February/April 1986, whereas the other two groups were involved in a more protracted usage, stretching from June 1986 through to the beginning of

1987, a period which also included the 1986 summer vacation during which most tutors were not working with their students.

As well as making for a mismatch in the time element of the first stage evaluation, the opportunity was perhaps lost of creating a more intense community of awareness and interest in the system. By the time one supervisor was, to whatever degree, involved in working with her group on the system, one other had finished with it and the opportunity for discussion, criticism and thus a general raising of awareness of issues was lost.

Similarly, a unified time scale and period of evaluation would have provided the further opportunity of organising group discussions of the system, as well as the individual conversations reported in Chapters 7 & 8. It is, of course, not possible to speculate as to the possible advantages to the evaluation of group sessions, nor is it easy to say whether they would have added anything to the ideas already brought out in individual conversations. It is worthwhile noting however that, in her final conversation, the Organiser feels that grouped conversation and discussion might have been productive. The adoption of this additional method of evaluation might

well have secured from her a greater degree of involvement and thus perhaps, have helped to legitimise the system in the eyes of tutors and supervisors.

### 9.3 First Use Stage: Effectiveness of evaluation methodology

Was the adoption of the case-study method an appropriate and effective one for the evaluation of the MALCM system in the context of the ABE Unit ?

The emphasis in this case study has been strongly towards anecdotal and experiential reporting of the system by users and as such most of the conclusions regarding it are drawn from 'second hand' evidence rather than directly observed or quantitatively measured.

Despite the element of quantitative rating in the system, its primary nature, as a consultative and guiding tool for users, means that their experience and their reporting of its effectiveness in these functions is still the principal and only genuine means of assessing whether it is being effective. This is particularly the case in the context of the ABE Unit where, given the lack of set syllabi or even formal testing, and of comparative and



normative assessment, there is no tradition or history of quantitative measuring of the relative success or achievement of tutors and students.

Formal statistical evaluation does not seem to be a remotely appropriate alternative. The innovation of the MALCM system into a small and close knit sub-cultural group like the ABE Unit is essentially a miniaturist exercise. The use of any statistical instruments would be therefore totally inappropriate since the tiny sample that could be provided would have no real viability.

The author, having deliberately chosen to let the system evaluation run without any close supervision or involvement by himself, outside of initial training and final evaluation, also thus ruled out the possibility of carrying out objective observation of the system in use. This would certainly have provided additional data to that produced by user reportage, though it would have entailed the devising of some non-intrusive method of recording accurately that which was observed.

However, the very presence of author in the unit during usage would have inevitably lead to inhibitions on the users and requests for help and intervention and would consequently have had effects on the users' experiences, attitudes and intentions.

How effective then, was the evaluation method adopted ? The approach, as outlined in chapter 6, was simple and involved recording users' reporting of their experiences and attitudes at the conclusion of the entire first use stage. The evidence given is, therefore, cumulative, and conveys attitudes and impressions gained over a period of time and at some distance from the actual experiences which gave rise to them. While this is convenient for both the evaluator and the user, there is no doubt that more detail would have been gained from a series of taped evaluations carried out immediately after use, at intervals during the first use stage.

Such a method would, however, have imposed an additional burden on the limited time of users and would have created a greater volume of material for the study to assimilate. As it was, the process of extracting and collating material from tape was time-consuming and generated some considerable amounts of text, as is evidenced by the material quoted in the two previous chapters, itself only a fraction of the total available on tape. The process was helped by judicious use of a word processor and by attempting to structure conversations with users so that their output on tape followed a similar pattern, allowing for the grouping of responses.

The material produced by the case study was valuable in creating a coherent picture of the users' experiences with the system and their attitudes to it. These are summarised later in this chapter. In addition, the material also gives an insight into the current attitudes and practices regarding the teaching and learning of literacy in the ABE Unit. This was particularly the case in the material derived from the sessions with the Organiser and the supervisors.

Certainly, as will be argued in the a later section of this chapter, the taped evidence provides sufficient evidence to make detailed comments on the MALCM system itself and to provide sufficient and valid guidelines for any future innovations and developments in Computer Managed Learning in a small educational unit.

### 9.4 Recent Research

Probably the most significant, relevant development in general computing is the emergence of computer software designed to represent and handle knowledge, (as opposed to data). Although still available in a fairly primitive and clumsy form, these 'Expert' systems can be used on the

current generation of IBM type microcomputers with around 640K of main memory. Their potential for education is highlighted in a report by Rushby (1986) of a seminar held in February 1986 to discuss the likely uses of Artificial Intelligence and Expert Systems in education. The relative novelty of such systems is underlined:

"... it is only in recent months that the ideas and tools have become readily available to practitioners in education and training." (Rushby, 1986 p. 282)

Rushby's paper is a report on a seminar held to discuss the use of Knowledge Engineering in Instructional Design. The term 'Knowledge Engineering' is used to refer to the process of eliciting the knowledge of a human expert within a restricted domain of expertise prior to attempting to represent that expertise in a 'Knowledge Representation Language' which is one of the tools provided by Expert System software.

The seminar produced an interesting parallel to the attempted rôle of the MALCM system in advising or guiding a tutor or student through a curriculum:

".... One futurist view of this approach is that the system will take the subject experts through a questioning process which extracts their knowledge, while allowing

them considerable freedom to develop areas of particular relevance for the project in hand. It will prompt and question until it is quite certain that it has all the relevant linkages. It is quite probable that this may be an exercise undertaken by several experts with overlapping areas of expertise, and it is certain that the input will need to be validated. Once completed, the expertise area will be available and should never need to be completely re-established.... although it will be updated. The complete or partial automation of the curriculum analysis leaves the designer with more time to concentrate on the learner populations and learning objectives, including:

- learner profiles
- pre-knowledge
- functional objectives
- stages of learning or training
- learning schedules
- management objectives

The system will begin to indicate audio-visual needs... associating them with specific objectives..."

(Rushby 1986, p 284)

The system postulated here is extremely sophisticated. Nonetheless it describes a concept of the use of the computer and associated technologies in teaching and learning which reflects closely the intended purpose of the MALCM system.

The parallel is further supported by seminar participants' usage of the term 'curriculum map', denoting the computer-based knowledge of an area of expertise and post dating the concept and term already coined and in use in this thesis.

The development of research and work in this 'enhanced' area of CBL has scarcely been broached, but it does indicate a way ahead for systems like MALCM which might go some considerable way to overcoming the drawbacks and limitations imposed by a development environment designed to store and process data rather than knowledge, a point discussed in more detail later.

Other writers (Benyon 1986, Whiting, 1986) have also recently stressed the changing role of the computer in education that may be brought about by the advent of Expert Systems and the techniques of Knowledge Engineering.

The need for structured and skilled system design techniques in producing CBL software, complementing the usage of the Warnier-Orr technique for the MALCM system, is discussed by Dickson and Blackburn, (Dickson and Blackburn, 1986). They elaborate their belief in a need for the establishment of standards of practice, design and usage in CBL and, by implication, underline the lack of structured development in CBL practice. They are careful to stress the discrete nature of the rôles of Analyst, programmer and user, as well as the need for skilled interaction between analyst and user:

"The skill of the systems analyst in the design of a system which provides the user with exactly what is wanted, and the expertise of the programmer in applying the techniques of efficient coding practices are unlikely to be combined in one person." (Dickson & Blackburn, 1986)

The experience of the work of this thesis shows that such a combination is, in fact, possible though at the cost of considerable time.

Recent reports of developments in the specific field of CBL in Literacy learning and teaching are rare. Berninger, 1986, reports on the use of micro-computer assisted software in teaching word encoding and decoding to Special Education students. The function of the micro in this work

was simply one of presenting visual stimuli of letter groups on a VDU screen in combinations and durations specifiable in advance by the teacher. This represents no real advance in technique or technical sophistication since the earliest reported uses of computers in the field. (cf. Green, Henderson & Richards, 1968)

The value of using standard computing applications packages in teaching language and reading is discussed by Wray, (Wray, 1986), in a survey of the current state of practice in CBL in the field, though his concern is largely with activity in the Primary sector. Little is reported even there of direct CAL and nothing of CML. Predictable stress is placed on the value of Word Processing which mirrors the popularity of that application in the ABE Unit.

Generally there are few reports of work which show any major usage of computers in Literacy teaching and learning, and none at all which show examples of usage going beyond the modes of use outlined in Chapter One.



### 9.5 Conclusions about the MALCM system

It was stated earlier, in chapter 6, that a major objective of the first stage usage and evaluation was to assess whether the system as currently constituted was capable of further evaluation immediately or with revisions to software and hardware. If this were not the case, and the system demonstrated major conceptual flaws, then some indication of the nature of these flaws and the desirability and means of eradicating them would have to be detailed.

In this latter case, it was suggested that the further development of the system would lie outside the scope of this thesis.

It is argued in the ensuing paragraphs that, although many valuable conclusions can be drawn from the development and evaluation of the current system, its nature is such that the second suggestion holds good and that further development is, in fact, not possible within the scope of this research.

Initially, it is necessary to examine different aspects of the system in the light of the evidence produced by the case study. Given this evidence, certain features of the MALCM system emerged as being successful by one or another definition of the word.

Firstly, there is the overall concept of the system, that is, of tool for the management of learning and for consultation by those involved in the teaching learning process. This concept seems to have met with the approval of the Organiser and one or two of the supervisors. Indeed the Organiser expressed a very positive interest in seeing this idea developed beyond the limitations and shortcomings of the present system:

"I would absolutely love to take MALCM and re-jig it and make it usable, and there are lots of the supervisors who would like to do that..." (Organiser, Tape 2)

Several of those involved expressed an interest in a system which could provide them with help and information on resources. Given this feeling, it would seem that there is a place for a useable unit-based knowledgeable system which could store information on students as a means for advising both tutors and students on the teaching/learning process and resources.

Secondly, the software coding of the system seems to have been fairly well implemented. There were no reports of any major system crashes or persistent bugs. The only fault in this direction was the inadequacy of printouts from the system, following the change of printer in the Unit. The success of the coding procedure, without any really major revision, reflects the efficacy of the Warnier-Orr design process outlined in chapter 5. There is no report in the literature of any similar attempt to use a standard data-processing system design technique in producing an educational CML/Advisory system and its successful use in this context is a demonstration that structured design has a place in the production of CBL software. However, this does not indicate that a standard data-processing view of educational information is a valid one, as will be discussed shortly.

In these two areas then, the concept and the technical execution, the system appears to have been, at the least, acceptable to users. In other areas however, it is open to considerable criticism. Some of this criticism can be derived from the evidence of the case study. Some, in addition, must be made in the light of developments in the field of micro-computer use and technological development.

The case study reveals several problems with the curriculum model at the heart of the MALCM system, related to its expression and presentation by the system, to its balance or focus on the topic of literacy, and to its derivation and genesis.

Firstly the model is badly expressed from the point of view of the users who appear, universally, to have found the system terminology extremely taxing. The terminology used owes a great deal to the derivation of the model which, as will be argued later, lies in research outside the experience or scope of the ABE Unit. Consequently, none of it was familiar to users who resorted to a variety of strategies to re-express the concepts involved in the system. Clearly, any revision of the system would have to tackle this difficulty.

The presentation of the curriculum model also caused problems in the sense that it was necessary for users to comprehend the whole concept before use, instead of being able to learn gradually through use. The task of taking the whole concept on board seems to have been too complex for the target audience. The evidence for this lies not so much in their explicit statements but implicitly in their apparent lack of understanding of the way the system is intended to be used. This difficulty is apparent not only among tutors but with the Organiser and supervisors.

Secondly, the relevance of the model to the actual practice and needs of the unit seems to have been compromised by its over-detailed focus on basic literacy skills. For example, the differentiation made between encoding and decoding level skills was one that many users found very difficult, if not unnecessary, to make.

Thirdly, the curriculum model was derived from research literature that had no credence or currency within the Unit or with its staff, and was therefore viewed as likely to be correct but somehow alien and over-technical. The evidence of the case study is that, while there is a common strand of thinking and practice regarding teaching method, the actual detailed perception of what is involved in being literate and how this relates to the content and structure of Adult literacy teaching does not play an important part in the Unit, either in teaching or in tutor training. The curriculum model proposed to the users by the MALCM system therefore carried a double burden of being not only unfamiliar but of being an unused and unneeded concept, from the point of view of users.

Whether the Unit is following a sound line of practice in having no articulated curriculum model in the sense that the MALCM system has one is open to question. From the point of view of an innovator bringing a new system

however, the double handicap mentioned above imposes an almost insuperable problem. One possible answer would be in basing a system on an elicited structure based on good practice within the unit. The problem here would be in trying to articulate what is, often, not explicitly stated, communicated or documented knowledge. For instance, there is no question that some ABE practitioners in Unit are not effective at their work in varying degrees. This can be attested by job successes and student persistence in attendance.

Given this ability there would be, however, a need to draw out and communicate implicit knowledge and understanding to incorporate these into the curriculum structure of any revised system. To do so would be a major task in itself and would probably stretch the data storage and manipulation abilities of the BBC BASIC programming environment to breaking point, thus involving the need to find a more efficient way of representing information or knowledge in the system.

This problem of representing information and knowledge in a system such as MALCM is highlighted again when considering the problems of storing and using information about the student. Basically, all information in the system was expressed as simple integers, being either the subjective ratings provided by tutors or figures derived

from basic arithmetical operations on these ratings. Thus all knowledge of the student was based on a set of data in integer form, and the system outputs used these to provide similar, numerically expressed information to supervisors and the organiser. There is no evidence from the case study or the recorded systems outputs that these were ever used or found useful in any way. Indeed, the whole concept of comparative rating, particularly between students and groups of students, seem to have been at odds with the practices of the Unit, where verbal assessment and rating of students is the norm, when it happens at all.

This primitive means of holding 'knowledge' of a student is completely at odds with the instinctive, implicit way in which the case study shows that human tutors 'know' their students. Nor is there any evidence from the case study that the system's knowledge' of the student is in any way superior to the tutors'. Indeed one of the virtues of the use of the system that emerged was that tutors were forced to reflect on their own view and understanding of their student's rather than take any notice of the system's understanding.

For a system to be able to advise and assist users in a meaningful way, it would have to be able to acquire, express and demonstrate its knowledge of students in a way that approaches, as closely as possible, the manner in

which users think about their work, be they tutors or students. Unfortunately, as indicated earlier, the data structures available to a system designer through the BBC BASIC language used for the MALCM system are those derived from commercial data processing where procedural operations are paramount. They do not easily permit the declaration of relationships between objects or concepts, or the clustering of these declarations into sufficiently powerful groupings to begin to approach the simulation of knowledge. It follows that they do not easily allow the manipulation and exploration of these concepts in a way that could simulate even the most primitive kind of 'knowledge'. This is an indication that, in a way, the MALCM system was trying to achieve something that the technology available at that time and at that resource level, was not really capable of delivering.

Since the MALCM system was first designed, the capabilities and nature of micro-computer technology have advanced considerably. Computers with twenty times the memory capacity of the original BBC Micro are commonplace and have permitted the introduction of richer and more varied software, among which are languages, such as PROLOG and LISP, and applications, such as Expert System shells, which would lend themselves more readily to the development of the kind of systems which MALCM can now be seen to represent, that is, systems which attempt to have



something approaching human understanding of a limited domain of knowledge. To redevelop the MALCM system would require the rejection of the BBC BASIC language and the original BBC machine in favour of the more sophisticated hardware and software available today.

One further possible development of the MALCM system emerged from the case study material, and that was the expressed need for information on the Unit's resources relating to particular teaching and learning topics as part of the system outputs. This seems a very logical and reasonable idea. To incorporate it into the system would, on the evidence of the case study, introduce a feature that tutors would find extremely useful, given the fairly massive holding of varied learning resources by the Unit.

In order to introduce this feature however, it would be necessary to classify the Unit's resources according to their teaching and learning use and then relate these to the curriculum model held by the system, prior to recoding and adding to the program modules in the system. Again, this would be a major undertaking.

In the light of what has been concluded in the previous paragraphs, it is apparent that the evaluation of the MALCM system has produced considerable information on the process of innovation and on the potential for a

computer-based system within a small educational grouping like the ABE Unit. The further development of the existing MALCM system would, however, require such major revisions of design and change of hardware and software as to be essentially a completely new project. For that reason there would seem to be no scope for further development of the MALCM system within the scope of this thesis. This does not, of course, preclude further development of more progressive systems for which the experience of this study has indicated certain ground rules.

Firstly there is the prime necessity of establishing a curriculum model of literacy that is flexible and appropriate to current approaches to adult literacy teaching as well as interactive microcomputer-based facilities. Secondly there is the need to select appropriate software and hardware for the purpose. Current developments in computing would indicate that knowledge processing capability is an essential ingredient of the software and this will have implications for the capabilities of hardware. Thirdly, and crucially, there is the necessity of selecting an innovation strategy which involves the recipients of the innovation at every stage and draws upon their existing knowledge and good practice in developing the system. This in turn returns to the first point since the curriculum model established should,

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where possible, reflect the practice of the recipients who will use the system.

## VOLUME ONE APPENDIX

### I. User Manual

## Appendix I

### 1 Note of explanation

Appendix I contains the text only of the Users' Manual written for all users of the MALCM system. Some figures referred to in the text are not provided, since they are duplicated elsewhere in the main body of the thesis. Other figures which are an integral part of the text file are given.

## 2 Manual Introduction

### INTRODUCTION

The system was designed as the central part of an M.Ed thesis by Angus Byrne and was completed in 1984. It is a form of Computer Managed Learning (CML) system and is specifically intended for use by literacy students, tutors, supervisors and organisers working in the Adult Basic Education (ABE) unit at New College, Durham. The MALCM system is designed to run on a BBC Model 'B' Microcomputer equipped with a printer and dual disc drive.

It is intended that it should be accessible to all involved in the Adult Literacy scheme and the design therefore follows the assumption that no particular user is in any way an experienced user of microcomputer-based systems. Naturally, as users become familiar with MALCM, they will acquire that experience, but it is hoped that the system will be sufficiently simple and non-alarming for the complete lay person to approach it with confidence.

It should be pointed out however that MALCM is a tool for use by volunteer and professional teachers in the field of Adult Literacy and as such does assume competence in that field. A certain amount of help and explanation is nonetheless built into the system for the convenience of users.

What MALCM does in the ABE-unit is to take over the task of recording and advising on the progress of literacy teaching and learning of tutors and students. It does this by asking for simple judgements to be made by tutors and/or students in certain areas of literacy learning and teaching already pre-defined by the system.

As an example, a tutor may have finished a session with his/her student during which the student had learned that the letter group 'sh' represented the sound occurring at the beginning of the word 'ship'. At the end of the session therefore, the tutor, perhaps with the student, would type in the student's name or system ID number on the computer keyboard and the VDU screen would come up with a request for the tutor to select from a display any areas in which work had been done in the session.

The tutor would then select the appropriate literacy skill "SUB-ARRAY PHONEMIC TRANSLATION". The VDU would then ask the tutor to rate the student on his ability in that skill on a scale from 1 to 4. The computer would store that rating in memory on disc and, assuming that the tutor had no more ratings to give the student in other areas, would

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print out for the tutor and the student a 'Literacy Curriculum Profile' which would give the current state of the tutor's ratings in all possible areas of literacy skills and behaviours for the student.

Finally, on the 'L.C.P', the computer would print out suggestions for topics that might need revision and would also suggest the next objective for tutor and student to tackle in their work.

A group supervisor would also use MALCM to keep informed about the progress of tutors and students in his/her group. At any particular moment he/she will be able to request from the computer a printout of the current ratings and progress of any or all of the students currently being taught by tutors in that group. Naturally the supervisor will have to know the requisite security code to obtain this information - security for the personal details of student's literacy teaching is considered highly important. It should also be pointed out that neither supervisors or organisers have access to information which is not also freely available to tutors and students or which appears regularly on the L.C.P. In addition, no personal information is held about students other than their name and administrative details connected with their involvement in the Adult Literacy scheme.

The system will also provide breakdown and analysis of current students for supervisors and organisers, in the form of a 'Supervisor Summary. This simply shows which students are working on which skills and behaviours and their current levels of progress and achievement. It provides a more refined version of the information given on the basic LCP.

### THE LITERACY MODEL

In order to operate, MALCM has a pre-stored map, or model of competent adult literacy in its memory and it uses this as a 'template' against which to measure the performance and ratings of students whose data is held in the system. In order to use the system successfully, tutors, supervisors and organisers need to be conversant with this model of adult literacy and the skills and behaviours which comprise it.

The model differentiates between component LITERACY SKILLS, which are cognitive/perceptual processes used to enable reading and writing, and LITERACY BEHAVIOURS, which are reactions of varying complexity to the demands made upon an adult by a literacy task. Thus, in this view, LITERACY SKILLS are the basic processes which enable the adult to get meaning from individual words and groups of words. LITERACY BEHAVIOURS are the abilities and

reactions which permit the adult to deal with the meaning of large numbers of words and their implications for the adult. Writing is considered as a literacy behaviour, although the component skills which permit the adult to construct correctly spelled individual words are of course lower-order LITERACY SKILLS.

### LITERACY SKILLS:

It is important to realise that an adult does not necessarily use all the LITERACY SKILLS available to him when reading or writing. SKILLS are in fact grouped into four differing levels ie:

- 1 - Auditory and Visual Feature extraction
- 2 - Encoding
- 3 - Decoding
- 4 - Accessing lexical memory

1 - Auditory/Visual Feature extraction is the process by which the adult distinguishes between:

- a: differing shapes in writing
- or
- b: differing sounds in speech

2 - Encoding is the process by which the adult recognises distinguishable shapes in writing as constituting a familiar letter or group of letters.

3 - Decoding is the process by which the adult is able to match individual letters or letter groups to the sounds in speech which they are intended to represent.

The first three of these levels denote processes which may or may not be undertaken by an adult in reading or writing. Whether or not that process is employed depends on two variables: the relative ability of the adult as a user of literacy skills and behaviours and the relative difficulty of the literacy task in hand.

The last of these levels refers to an essential process, the accessing of lexical memory. The lexical memory is the hypothetical part of the human brain in which words and their associated meanings are held and it is by using the lexical memory that an adult gets meaning to correspond to whatever stimulus has enabled him to access the lexical memory in the first place.

In reading, the literate adult has several possible routes to getting meaning from his lexical memory. He/She may:



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a: Use Visual Feature extraction to get sufficient clues to provide subsequent direct access to the lexical memory, without recourse to the processes of Encoding or Decoding.

b: Use Visual Feature extraction prior to encoding the 'extracted' features as recognisable letter or letter-group shapes. Access to Lexical memory may then be possible without further recourse to the Decoding process.

c: Use all three levels, Feature extraction, Encoding and subsequent Decoding of recognised letters or letter groups into their appropriate sounds and articulation patterns before being able to access the Lexical memory

Fig.i1 illustrates this variable use of processing levels to achieve lexical access in reading.

In writing, a similar but reverse pattern occurs. Having generated a word from lexical memory as a response to a desire to communicate in writing, the adult may need to go through similar varied combinations of the first three process levels before being able to transcribe the word in writing.

Fig.i2 illustrates this variable use of processing levels in writing.

Process levels are not skills in themselves. An adult may use several component literacy skills at each level in order to enable that process to take place. In fact literacy skills can be categorised according to the level of processing at which they are used, as shown in Fig. i3

The MALCM system therefore, looks on the ability to read or write individual words as the selective exercise of these sixteen identifiable skills. Each is explained in detail below.

### The sixteen literacy skills - explanations:

1. Sound input discrimination skills - the ability to distinguish the different sounds made in speech. This is, obviously, a prerequisite to a meaningful understanding of spoken language.

2. Visual input discrimination skills - the ability to distinguish the differing marks and symbols used to make up the formations we know as 'letters'. Note that this does not imply the ability to recognise letters - it describes simply the ability to distinguish between, say, a straight line and a curved line.

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3. Motor control skills - the ability to co-ordinate hand and eye in producing writing.

4. Single letter recognition - the ability to recognise a mark or collections of marks as constituting a familiar single letter of the alphabet. This does not imply any ability to reproduce the sound of that letter.

5. Letter group recognition - the ability to recognise a mark or collection of marks as constituting a familiar group of letters of the alphabet. An example would be the recognition of the letter group 'th' as a group rather than two separate operations, recognising 't' and then 'h'. Again, no ability to reproduce the sound of the group is implied.

(6 - 14 Decoding: NB. the meaning of the following terms used in describing Decoding skills:

ARRAY - a group of letters constituting a separate unit, to which, as yet, no meaning has been assigned from lexical memory. In other words, a word before meaning has been given.

SUB-ARRAY - a single letter or group of letters forming part of an array.

PHONEMIC TRANSLATION - the ability to assign the correct sounds to a single letter or group of letters

ARTICULATION - the ability to give the correct stresses and pronunciation patterns reproducing the sound of a word or an array.

WORD - a group of letters to which a separate meaning has been successfully assigned from lexical memory.

SUB-WORD - a single letter or group of letters forming part of a word.)

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6. Sub-array recognition - the recognition of a single letter or group of letters as a part of a word likely to have meaning or an influence on meaning. For example the recognition of 'ing' as a meaningful part of the array 'meaning'.

7. Array recognition - the recognition of a letter or group of letters as constituting a likely separate word with a separate meaning of its own. For example, the recognition of 'a' or 'meaning' as separate units likely to have meaning.

8. Sub-array phonemic translation - the ability to reproduce (or 'hear') the sound(s) represented by a recognised sub-array.

9. Array phonemic translation - the ability to reproduce (or hear) the sound(s) represented by an array.

10. Array articulation - the ability to reproduce the correct stresses and pronunciation patterns of an array.

11. Sub-word phonemic translation - the ability to reproduce (or') the sounds of part of a word generated from the adult's vocabulary or lexical memory.

12. Word phonemic translation - the ability to reproduce (or 'hear') the sounds of a word generated from the vocabulary or lexical memory.

13. Spelling-pattern checking - the ability to recognise standard configurations of letters which are acceptable ways of representing the sounds of words or sub-words.

14. Word articulation - The ability to reproduce the correct stresses and pronunciation patterns of a word generated from the vocabulary or lexical memory.

15. Use of context evidence - the ability to use the meanings of surrounding words in a piece of text to deduce the meaning of an array.

16. Lexical access and retrieval - the ability to find meanings in the human memory as a result of varying stimuli.

### The use of Literacy Skills:

As has already been indicated, a literate adult does not necessarily use all the available literacy skills when reading or writing. Research seems to indicate that a competently literate adult does not normally need to decode in order to achieve meaning from reading. Provided

that literacy task in hand is not too complex or difficult he/she will frequently achieve successful access to lexical memory by taking cues from letter group recognition. In addition, the literate adult will frequently not need to read every word or letter in a literacy task, but will deduce many words from the context. In fact a sampling process is taking place, overall meaning frequently being arrived at by 'guessing' from context.

However, as soon as a literacy task becomes unfamiliar or difficult for an adult, then he/she will automatically fall back to more detailed processing of text, and may, for instance need to decode some unfamiliar material before being able to achieve access to lexical memory.

Generally speaking, the more ability an adult has to process at all levels, the more flexible his response will be to the varied challenges presented by an assortment of real-world literacy tasks. In teaching literacy skills to adults then, a useful strategy would seem to be to ensure that an adult has an all-round capability at different levels of processing. This view provides the basis for a curriculum approach to this aspect of literacy teaching and the MALCM system assesses student performance on this basis.

#### LITERACY BEHAVIOURS:

In discussing SKILLS, we have tried to isolate the component processes and sub-processes that occur in the human memory and nervous system when reading and writing happen. However, the concept of LITERACY is one which must contain much larger scale ideas of a person's interactions with the real world. It is therefore necessary to have some means of analysing two things:

- 1 - The LITERACY 'TASKS' which confront adults during the course of their lives.
- 2 - The 'REACTIONS' which adults make or are expected to make to these 'TASKS'.

#### 1 - LITERACY TASKS:

Literacy tasks are the actual problems of reading and writing that confront us every day of our lives. For example, one of the simplest might be the 'PUSH' or 'PULL' notice on a door into a shop. Similarly, the act of 'signing on' at an unemployment benefit office is a simple literacy task which confronts many adults at the present time.

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A much more complex literacy task is being tackled by you at this very moment as you read this text. You are being required to understand concepts, relate them to previous concepts you may have already acquired and you may also be trying to relate these concepts to your own experience in everyday life. Clearly, LITERACY TASKS are numerous and extremely varied; some form of analysis or classification is required. The MALCM system does this in a fairly simple way. First of all it divides LITERACY TASKS into two categories:

1 - Those which are commonly experienced on a regular basis by most of the adult population and which are not usually sought out on a voluntary basis by adults but are 'imposed' on them or confront them willy-nilly. These are termed COMMON/IMPOSED literacy tasks.

2 - Those which are actually sought out by individual adults, voluntarily, and which, by definition, reflect, much more than the first category, their own personal interests, circumstances and wishes. Tasks in this category will tend to have a much less wider target 'population' than those in the first. They are termed VOLUNTARY/PERSONAL literacy tasks.

Taking the three examples given above, the first two, (the door plate sign and the act of signing on), would appear to be pretty firmly in the COMMON/IMPOSED category, while the third, (reading this text), is almost certainly in the VOLUNTARY/PERSONAL category, since it reflects your interests and desire to help adults with literacy difficulties and is likely to be restricted to a small sub-group of the population as a whole.

Having made this division of LITERACY TASKS into these two categories, the MALCM system goes further and attempts to sub-divide each category into appropriate SOCIAL CONTEXTS.

With COMMON/IMPOSED tasks, this is fairly straightforward. Currently the MALCM system recognises 12 subdivisions or SOCIAL CONTEXTS in which COMMON/IMPOSED literacy tasks are likely to confront adults.

- 1 - Personal/Individual Relationships
- 2 - Group Relationships
- 3 - Domestic/Home Matters
- 4 - Education/Training
- 5 - Health
- 6 - Job/Functional Activities
- 7 - Consumer Matters
- 8 - Travel
- 9 - Getting Employment/Being Unemployed
- 10 - Civic/Political

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- 11 - Entertainments/Media
- 12 - The Law

With VOLUNTARY/PERSONAL literacy tasks however, such classification is impossible to carry out in general terms. The MALCM system therefore requires tutors and students to build up a list of SOCIAL/PERSONAL CONTEXTS as a gradual process following the tutor's increasing familiarity with the personal needs, interests and circumstances of his/her student. The system allows for up to 20 such subdivisions or CONTEXTS for VOLUNTARY/PERSONAL literacy tasks. Determination of these is entirely at the discretion of the tutor and student.

A purely fictitious example of VOLUNTARY/PERSONAL CONTEXTS is given for an equally fictitious student is given below, reflecting a supposed interest in C.B. Radio.

- 13 - C.B. Magazines
- 14 - Club Membership
- 15 - Electronics Installation
- 16 - Responses/Enquiries to Advertising
- 17 - Log/Report Writing

When added together, the COMMON/IMPOSED SOCIAL CONTEXTS and the VOLUNTARY/PERSONAL CONTEXTS give an, at least, partial picture of the areas in which the student is likely to encounter LITERACY TASKS and the problems they may engender for him. A tutor already has a partial picture of the kind of curriculum he might follow in selecting material and subject matter for the student, and for planning of future work.

As we have seen however, different LITERACY TASKS, whatever their social context can make varying demands on the adult - some classification of the complexity of the task is required.

### 2 - EXPECTED REACTIONS TO LITERACY TASKS:

Any given LITERACY TASK expects the adult involved in it to react in a certain way. The door plate reading 'PUSH' expects an adult to understand the meaning of the single word (via the use of LITERACY SKILLS outlined earlier) and subsequently perform a physical action to open the door. The part of the form reading 'SIGN HERE' expects the adult to read and understand the two words and then write down his name in 'signature' form.

At a more complex level, this text expects you to read and understand words and fairly sophisticated concepts, to relate these concepts to others previously understood by

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you and to subsequently perform fairly sophisticated functions, (ie tutoring a student), in a manner that reflects your understanding of those concepts.

The MALCM system, therefore, further classifies LITERACY TASKS by the nature of the EXPECTED REACTION implicit in them. Currently, six levels of EXPECTED REACTION are recognised by the system.

- 1 - Understand Simple Instruction
- 2 - Understand Facts and Concepts
- 3 - Select and Discriminate Facts and Concepts
- 4 - Assemble Facts and Concepts
- 5 - Present Facts and Concepts in Writing
- 6 - Appreciate and Enjoy

It should be obvious that these EXPECTED REACTIONS to LITERACY TASKS are numbered roughly in order of increasing complexity. In addition, it should be pointed out that any level will usually assume competence at performing previous levels. Thus, if an adult can competently perform at level 4 in SOCIAL CONTEXT 9, (ie: can Assemble Facts and Concepts in the context of Getting Employment or Being Unemployed), it can be assumed that he can also understand simple instructions, understand facts and concepts and select and discriminate facts and concepts in this context.

Under the MALCM system then, a LITERACY BEHAVIOUR is the term given to the ability to perform a given EXPECTED REACTION to a LITERACY TASK in a given SOCIAL CONTEXT. Fig. i4 presents the range of literacy behaviours as a grid or matrix of EXPECTED REACTIONS and CONTEXTS. This, together with concept of LITERACY SKILLS discussed previously, is, in fact, the form in which the MALCM system views the LITERACY CURRICULUM for any given student.

### 3 Supervisors' Guide

#### SUPERVISORS' GUIDE

This section of the manual gives details of practical day-to-day operation of the MALCM system to be performed by Group Supervisors.

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N.B. - It is assumed that Supervisors are already familiar with the details of the Tutors and Student's guide. Therefore, PLEASE READ THE TUTORS' AND STUDENTS' GUIDE IF YOU HAVE NOT ALREADY DONE SO.

\*\*\*\*\*

The supervisor is responsible for :

- 1 - Starting up the system at the beginning of a session.
- 2 - Selecting the Tutors' Menu ready for Tutors' use during a session.
- 3 - Closing down the system at the end of a session.
- 4 - Producing regular LPA printouts for his/her group.
- 5 - Helping Tutors and their Students to use the System.
- 6 - Reporting difficulties and problems back to full-time ABE staff.

Each of these stages is explained in detail as follows:

#### 1 - STARTING UP THE SYSTEM

##### a) Switching on:

Check that all the hardware is plugged in, and that on/off switches on all hardware devices are set to ON - specifically on:

THE TV/VDU  
THE DISC DRIVE  
THE PRINTER  
THE BBC MICROCOMPUTER

When everything is running correctly, you should have the display:



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BBC Computer 32k  
DFS  
BASIC  
>

showing on the VDU.

There should be 3 green lights showing on the printer. (Note that it will pay you to check that the print head on the printer is set just below a perforation line on the paper before you switch it on. This will ensure a neat printout from the system.)

### b) Inserting the discs:

If everything is OK so far, insert your MALCM DISC into drive number 0. Remember that discs are inserted label side up, with the label nearest to you as the disc goes in.

Make sure that the doors on the two drives are closed.

### c) Loading the programs:

If everything is OK so far, type: CHAIN "MENU" on the computer keyboard. Make sure you are using capital (upper case) letters. Then press the key marked: RETURN

You will hear a whirring and clicking noise from the disc drives which simply means that they are loading the correct program.

After a short time, the VDU screen will display the message:

ENTER TODAY'S DATE ?

which you should then do, preferably in the form of DD/MM/YY, (eg: the 4th April 1984 would be 04/04/84. Then press RETURN. The VDU screen will then display the main MENU for the MALCM system which will look like this:

### MALCM SYSTEM - MAIN MENU

PLEASE SELECT USING RED KEYS ONLY:

- f1 - System Data Operations
- f2 - Tutor Access
- f3 - Supervisor Access

(Note that this is called a MENU because you select the option you want to use rather like selecting an item from the menu in a restaurant. In the case of this particular

MENU, selection is carried out by pressing the appropriate RED key on the BBC microcomputer keyboard. Wherever possible in the MALCM system, a simple key press using the red keys only is used as the means of communicating with the system, though occasionally it is necessary to type in names or numbers using the black keys on the microcomputer keyboard.)

The three MAIN MENU options are used as follows:

**f1 - System Data Operations:**

You would use this option if you wanted to add or delete the names of tutors and students to the system records. For instance, if a new student had started in your group, you would want to add his name to the system as soon as possible and would select System Data Operations (SDO) to do so. If a tutor or student had left the scheme altogether, you might wish to delete him/her from the records; to do so you would use the SDO option. The exact working of SDO options is explained elsewhere.

**f2 - Tutor Access:**

This is the main mode of use for tutors and students, and you would select it to set the system ready for tutors use at the beginning of a session. On selecting this option, by pressing f2, the TUTOR SEQUENCE menu will appear on the screen. This, and the subsequent working and use of the TUTOR ACCESS SEQUENCE is explained in the Tutors and Students guide which you should already have read.

**f3 - Supervisor Access:**

This is the option designed specifically for your use. On selecting it you will be asked to give the appropriate security password, (available from the organiser). You should type this in and press RETURN, whereupon the system will produce a printed analysis of the current ratings and performance of students in your group, the SUPERVISOR SUMMARY (SS). Details of the LPA are explained elsewhere.

**2 - SELECTING TUTORS' MENU READY FOR USE DURING SESSION.**

This is simply a matter of selecting the f2 option (TUTORS ACCESS) on the MAIN MENU. If you have read all the details of setting up the system this should present you with no problems.

**3 - CLOSING DOWN THE SYSTEM**

Basically, this is the reverse of the setting up procedure. You should, however, bear the following points in mind.

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Once you switch off the microcomputer, its memory is obliterated, so make sure it is not in the middle of an operation when you do hit the switch, otherwise disaster will result. Generally speaking, you should not switch it off unless the VDU is displaying one of the system MENUS.

Do not try to remove your discs while the disc drive is in operation. As a general rule, leave your discs in the drives until everything else is switched off. And remember - discs are delicate things. Always replace them in their cardboard sleeves and then in their correct storage location in G29 or G31. Don't take discs out of these two rooms or out of college. Full-time staff may need to have access to them at any time.

Make sure all printout material has been removed from the printer. It is your responsibility to make sure that Tutors and students take and store their LCP's. You should do the same with all your SS's.

Finally, make sure that all wall plugs are switched off and, if you are the last user of the day, unplugged from wall sockets. That way electrical disasters can't happen. And don't forget to sign the user log.

### 4 - PRODUCING REGULAR LPA PRINTOUTS FOR YOUR GROUP.

If you have read the section on setting up the system, you will realise that this is simply a matter of selecting the f3 (SUPERVISOR ACCESS) option on the MAIN MENU.

You should aim to do this at least once per week. All LPA's should be read and then stored, to help with evaluation of the MALCM system. The system will keep track of the last date on which you produced an LPA.

Details of the working of the SUPERVISOR ACCESS sequence and the contents of the LPA are explained elsewhere.

### 5 - HELPING TUTORS AND STUDENTS TO USE THE SYSTEM

Inevitably, during the course of a session, some tutors and students may forget how to use the system or may become confused, at which point a calm, helpful intervention from the supervisor will prevent panic setting in. The system is designed so that only the very simplest responses are required during the tutor access sequence. However, new or nervous tutors and their students may require 'nursemaiding' through their use of the sequence.

Read the section on TUTOR AND STUDENT USE and be prepared.

## 6 - REPORTING DIFFICULTIES AND PROBLEMS BACK TO FULL-TIME ABE STAFF

There are bound to be times during the evaluation of the MALCM system when difficulties arise and things go wrong. If you have a problem, read these notes again, or consult the attached troubleshooting guide. If all else fails however, consult full-time staff.

When full-time staff are not available, then fill out a 'TROUBLE REPORT' form, (available next to the hardware in G31), and leave it in the file box provided. Your report will be fully investigated next day.

### MALCM SYSTEM OPTIONS - SUPERVISOR GUIDE

The following pages describe the working and use of the two options likely to be used by Group Supervisors, namely: System Data Operations (SDO's) and Supervisor Access (S.Acc)

Information on the use of the Tutor Access option (T.Acc) can be found in the TUTORS AND STUDENTS GUIDE and should be read before the following option descriptions.

#### **f1 - System Data Operations (SDO's)**

This option is selected from the MAIN MENU by pressing the red f1 key on the BBC microcomputer keyboard. It has four functions:

- 1 - To delete any Tutor's records and name from the system files.
- 2 - To delete any Student's records and name from the system files.
- 3 - To add a new record for a new Tutor to the system files.
- 4 - To add a new record for a new Student to the system files.

The MALCM system keeps a separate record for every student and tutor involved in the system. Every time a tutor/user puts information into the system about a particular student, then that information is stored in the record for that student. The collection of individual records held for all the students in the system is known collectively as a file. There are in fact several different files used by the system.

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When a tutor or student joins the system, his/her name needs to be entered into the system files. Similarly when a tutor or student has effectively left the scheme, and therefore the system, his/her records can be deleted from the system files if no longer required by the supervisor.

Such operations are easily carried out by Supervisors or Organisers by use of the SDO option.

On selecting f1 in the MAIN MENU, the user will be presented with a further menu requiring a choice between:

**f1 - Alter TUTOR details ?**

**f2 - Alter STUDENT details ?**

**f3 - Do neither of these - escape ?**

(The f3 (escape) option is provided here for users who have arrived at this menu by mistake or who have changed their minds after selecting it. Selecting f3 at this stage will return the user to the MAIN MENU.)

### **f1 - Alter TUTOR details:**

This will be selected if the user wants to add or delete tutor records. Pressing this key will present the user with yet another choice:

**f1 - Add a new Tutor to the file ?**

**f2 - Delete a Tutor from the file ?**

If f1 is now selected the user will first be asked to type in the new Tutor's name. This should be typed out on the microcomputer keyboard with care. Supervisors should bear in mind that, as the name is typed in, so it will be recorded in perpetuity by the system. The format of <forename><space><surname> is recommended, ie:

Angus Byrne  
Angela Lee

The BBC microcomputer can provide both upper and lower case letters. The above format of initial upper case and subsequent lower case is recommended but it is not essential. It simply looks tidy and is conventional.

After typing the name the user should press the RETURN key.

No further action is required from the user and the VDU will shortly confirm that the new tutor has been recorded into the system. It will also confirm the new Tutor's ID

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number which you should note down for convenience. Subsequent SUPERVISOR SUMMARIES will show the new Tutor's details, including the ID number.

If f2 is selected, the user will be asked if he/she knows the ID number of the tutor whose records are to be deleted. The user should type YES or NO according to the circumstances, then press the RETURN key.

On a YES answer, the user will then be requested to type in the ID number, followed by a press of the RETURN key. No further action is required of the user, unless the number transpires to be inaccurate, in which case the user will be requested to have another go. Subsequently the system will return automatically to the MAIN MENU.

On a NO answer, the user will then be invited to type in the name of the Tutor instead of the ID number. This must be done using the name exactly as it appears in SUPERVISOR SUMMARIES and LCP's. After entering the name, the RETURN key should be pressed. No further action will be required from the user, unless the name entered proves to be inaccurate, in which case the user will be requested to enter it accurately. Subsequently, the system will return automatically to the MAIN MENU.

### f2 - Alter STUDENT details

Selecting this option will present the user with a further choice:

f1 - Add a new student to the file ?

f2 - Delete a student from the file ?

If f1 is selected, the user will now be invited to type in the name of the new student. Again the format <forename><space><surname> is recommended, (see under 'Alter TUTOR details').

Next the user will be asked to enter the ID number of the new student's Tutor (who should already be on the system files). If this number is not available, a further option is available to enter instead the NAME of the new student's tutor. This should be typed in exactly as it appears on SUPERVISOR SUMMARIES or LCPs, otherwise a 'NO SUCH TUTOR' message will be displayed and the user will be invited to enter the name accurately.

Next, the user will be asked to type in the title of the new student's course. This should be entered as succinctly as possible with a maximum of 30 characters. As usual the RETURN key should then be pressed to enter the information.

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No further action will be required from the user. The system will confirm the new student record and give the new student's ID number, before returning to the MAIN MENU.

If f2 is selected, the user will be asked to enter the ID number of the student whose record is to be deleted from the files. There is an option to enter the name of the student if the number is not known or not available at the time. In both cases the user should, as usual, press the RETURN key to enter the information.

Normally, no further action will be required from the user, unless a name or number has been entered inaccurately, in which case a re-entry of the information will be requested. Subsequently, the system will return to the MAIN MENU.

N.B.: Supervisors should take care in checking the accuracy of ID numbers or names before using the SDO options, since ONCE RECORDS HAVE BEEN DELETED, THEY ARE IRRETRIEVABLE.

### Main Menu option f3 - Supervisor Access (S.Acc)

S.Acc is used to print out the SUPERVISOR SUMMARY (SS) for a given supervisory group. In practice, of course, all the records for one group will be held on one disc, so the SS produced will be for all the students whose records are held on that disc. As a summary, it has no effects on the contents of Student and Tutor records. It merely prints the information out in what is, hopefully, an acceptable and comprehensible form.

In order to gain access to this option and the 'privileged' information that it contains, the supervisor will, on selecting f3, be requested to enter the security code for that particular supervisory group. This code can be obtained from the Organiser and should already be familiar to the supervisor. If an inaccurate password is entered, no access will be granted. In addition, if more than three inaccurate attempts are made, the system will automatically return to the MAIN MENU.

On entering the correct password, no further action will be required from the supervisor and the system will print out the SS for that supervisory group.

### The Supervisor Summary

The Supervisor Summary (SS) consists of several sheets of printed information relating the group of students in question. The number of sheets printed will vary according to the number of students in the group.

On the first sheet will be printed the TUTOR SUMMARY and the STUDENT SUMMARY. These simply list Tutors and Students recorded as working with group, together with their ID numbers and certain other information, including the date of the last LCP recorded for or produced by that individual. Fig. s1 shows a fictitious example of both.

Starting on the next sheet, the system prints out a WEIGHTINGS ANALYSIS for each student registered for the group.

Weightings are an important 'measuring' device in the MALCM system - while it is not necessary for supervisors to know how they are actually calculated, it is necessary to be able to interpret them. They are in fact calculated from ratings entered by tutors for their students and are used to decide upon revision topics and learning objectives. They also provide a means for comparing student performances and abilities within the group and across the whole system. Fig. s2 gives a fictitious example of one.

The first weightings shown are for Literacy Skills at each processing level. The maximum weighting possible here is 3600, the minimum being 0. The higher the weighting therefore, the more apparently competent the student at that level of processing, the assessment being based on the tutor's ratings for the student. The fictitious student named in Fig. s2 therefore has been assessed as perfectly competent at the three skills in process level one. However, his weighting at the encoding level is low, indicating either low ability or a lack of assessment or both. Obviously no assessment has as yet been carried out for skills at levels 3 and 4, a fact indicated by the 0 weighting.

The next weightings shown are those for the 12 Common Social Contexts of Literacy Behaviours. Weightings here reflect the relative recorded abilities at successfully performing Expected Reactions in each of these contexts. Maximum possible here is 1296 with the minimum, a 0 weighting, indicating that no ratings have been assigned for that particular Social Context. In the case shown in Fig. s2, no ratings have as yet been given for any of the 12 Common Social contexts. However, one V/P Social context



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has been added to the student's record and a relatively low rating of 24 given. The overall behaviours rating is, like that for skills, an arithmetical mean, slightly adjusted. In this case it is low, reflecting a widescale lack of assessment in Literacy Behaviours.

An overall impression of this student's abilities therefore might be that, although assessment is apparently at an early stage, general ability is not high.

Supervisors should be aware that weightings are based not only on the 1-4 ratings assigned by tutors, but also on the length of time that has elapsed since a skill or behaviour was first rated. Unless a rating is 4, it is assumed that the student's ability, not being perfectly competent, will decline in that area. Therefore weightings given in the SS for particular process levels or Social Contexts may be seen to decrease from one SS to another. A fresh rating being assigned will of course restore the weighting to at least its previous highest level.

### The calculation of weightings in MALCM

As a matter of technical interest, weightings in the MALCM system are calculated as indicated below. It is not necessary to follow through and understand this arithmetic to be able to use the system !

Overall Skills Weighting (Ws) is calculated as:

$$W_s = \frac{W_1 + W_2 + W_3 + W_4}{4} \quad (\text{Range of } W_s \text{ is } 0 \text{ to } 3600)$$

where  $W_1 - W_4$  are weightings for Skill Process levels 1 - 4 and are calculated as:

$$W_n = P \times L \times D \quad (\text{Range of } W_n \text{ is } 0 \text{ to } 3600)$$

where  $n$  is 1 - 4 and where

$P$  = % of elements rated at level  $n$

$L$  = mean of competency values of ratings at level  $n$

$D$  = mean of duration values of ratings at level  $n$

Overall Behaviours Rating ( $W_b$ ) is calculated as:

$$W_b = W_r \times B - 1 \quad (\text{Range of } W_b \text{ is } 0 \text{ to } 1296)$$

where

$B$  = No. of first totally unrated Expected Reaction Column in the Literacy Behaviours matrix and

$W_r$  is the mean of weightings  $W_1 - W_n$  for Social Context rows in the Literacy Behaviours matrix and

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$W_n$  is calculated as:

$$W_n = N \times L \times D \quad (\text{Range of } W_n \text{ is } 0 \text{ to } 216)$$

where  $n$  is 1 - 32 and where

$N$  = No. of rated elements in row  $n$

$L$  = mean of competency values for row  $n$

$D$  = mean of duration ratings for matrix row  $n$

NOTE: Competency ratings are the actual ratings given by tutors to students for skills and behaviours.

Duration ratings are single figure numbers (range 0 to 9) which are automatically set at nine once a skill or behaviour is first rated by a tutor, and which are automatically decremented by 1 at every LCP access unless a new rating is given, in which case they are reset to 9. The system uses duration ratings as a means of keeping track of revision topics. Any skill or behaviour rated at 4 (perfectly competent) is permanently set at a duration value of 9.

### The histograms in SS

Following the individual WEIGHTINGS ANALYSES in the SUPERVISOR SUMMARY (SS), the system goes on to print out three histograms displaying overall information for the students on the group. The first shows the overall skills and behaviours weightings for each student in the group as percentages of the maximum possible ratings. An example is provided in Fig. s3.

The second histogram shows the number of students in the group who are recorded as working at each of the Expected Reaction levels in the Literacy Behaviours matrix. Fig. s4 gives an example.

The last histogram shows the mean percentage weightings for the whole student group over the four Skill Process levels. Fig. s5 gives an example.

Following the printout of the SS, the system returns to a display of the MAIN MENU.

#### 4 Tutors' Guide

##### TUTORS' AND STUDENTS' GUIDE

This section of the manual gives details of practical session by session use of the MALCM system by Tutors and their students. READERS SHOULD NOTE THAT READING ABOUT THE USE OF A SYSTEM IS MUCH MORE LABORIOUS AND TIME CONSUMING THAN ACTUAL PRACTICAL USAGE OF THAT SYSTEM.

\*\*\*\*\*

NB - It is assumed that Tutors reading this section will be familiar with the model of Literacy upon which the MALCM system is based. Details and explanations of this model are given in the introductory section of the manual. Therefore, PLEASE READ THIS EXPLANATION OF THE LITERACY MODEL UNDERLYING THE MALCM SYSTEM IF YOU HAVE NOT ALREADY DONE SO.

\*\*\*\*\*

Tutors (and their students if desired) can use the MALCM system to:

- 1 - Evaluate and assess the progress of teaching and learning by Tutor and Student.
- 2 - Make decisions about the student's curriculum, both on a short term and a long term basis.
- 3 - Keep a physical printed record of the student's progress and abilities in Literacy Skills and Behaviours.
- 4 - Receive information on the nature of Literacy Skills and Behaviours as an aide-memoire to assessment and evaluation.

In order to ensure efficient and successful use of the system, Tutors are responsible for doing several things at the end of each teaching session with their student. Specifically, at the end of each session Tutors should:

- 1 - Review the activities of the session and enter into the MALCM system any new ratings for Literacy Skills which seem appropriate.
- 2 - Review the activities of the session and enter into the system any new ratings for Literacy Behaviours which seem appropriate.

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3 - Review their growing knowledge of the student and enter into the system any new Personal/Voluntary Contexts for Literacy Behaviours that seem appropriate.

4 - Obtain from the system a printed 'Literacy Curriculum Profile' (LCP) for their student which should then be consulted and studied before being filed for future reference.

5 - Report any difficulties or problems with the system or its use to the Group Supervisor or to full-time ABE unit staff.

6 - Ensure that, on finishing with the system, the MAIN TUTOR MENU' is displayed on the VDU screen ready for use by other tutors and students.

The practical details of these responsibilities are explained as follows:

### 1.2&3 - ENTERING NEW RATINGS / ADDING NEW V/P CONTEXTS

The group supervisor will ensure that the system is ready for tutors to use. The main Tutors menu should be displayed on the VDU screen as shown in Fig. t1. below.

MALCM SYSTEM - TUTORS SEQUENCE

Do you want to:

- f1 - Give new ratings for SKILLS ?
- f2 - Give new ratings for BEHAVIOURS ?
- f3 - Produce a LITERACY CURRICULUM  
PROFILE (LCP) ?
- f4 - None of these - escape ?

Please Select using RED KEYS only

### Fig. t1. - Main Tutors menu.

This is the Main Tutors Menu - if it is not displayed on the VDU screen then THE SYSTEM IS NOT READY FOR TUTORS USE. In this case, please consult your supervisor. (Note that this is called a MENU because it offers you a selection of alternative choices, rather like the menu in a restaurant.)

Selections f1 and f2 in this menu involve giving new RATINGS for either Literacy Skills or Behaviours. You should be aware of what Skills and Behaviours are from a reading of the section on the Literacy Curriculum Model. IF YOU DO NOT FULLY UNDERSTAND THESE CONCEPTS, REFER TO THAT SECTION OR CONSULT YOUR GROUP SUPERVISOR BEFORE GOING ANY FURTHER WITH THIS SECTION.

### DECIDING ON RATINGS FOR SKILLS AND BEHAVIOURS.

The MALCM system asks you to give ratings to your student's ability or performance in Skills and Behaviours. You should assign these ratings as a result of your assessment of the student's progress during a teaching session.

To make matters simple you are asked to give a rating on a scale of 1 - 4 on the following basis:

- 1 - Absolute Beginner
- 2 - Starting to make progress
- 3 - Quite good
- 4 - Perfectly competent

Thus, if you find that your student, at the end of a particular session has shown considerable improvement in, say, letter recognition, (Skill 4), from the previous session, you may decide that he should be classed as 'quite good' instead of, as previously, 'starting to make progress'. On using MALCM at the end of that particular session, you would therefore 'update' his rating on the Skill 'Letter Recognition' from 2 to 3.

Similarly, ratings of Literacy Behaviours are assigned on the same scale of 1 to 4. If at the end of the same session, you are happy that the student is very good or competent at reading the travel information on his local bus stop, then you will assign a rating of 4 for the behaviour which is identified by the expected reaction 'Read and understand facts and concepts' and by the common/imposed context of 'Travel'.

The first time you come to use the MALCM system, all your student's possible Skill ratings and Behaviour ratings will be unrated. That is, no rating will have been assigned to them. There is no compulsion on you, the tutor, to give any rating until you are sure that it is a

reasonably accurate one. Thus, YOU ARE NOT REQUIRED TO RATE SKILLS OR BEHAVIOURS WHICH YOU HAVE NOT HAD A CHANCE TO ASSESS. You should only enter ratings or update ratings as a result of genuine assessment and/or conviction that some progress has been made.

It follows then, there will be occasions on which you may come to the MALCM system with no new ratings or updated ratings to give. In this case you would simply select the f3 option on the Tutors Main menu, which would then fulfil your 4th responsibility as outlined above, the production of a Literacy Curriculum Profile (LCP) for your student. The details of the Literacy Curriculum Profile are explained later. Note, however, THAT YOU MUST PRODUCE AN LCP AT EACH SESSION, EVEN IF YOU HAVE NOT GIVEN ANY NEW RATINGS OR UPDATED RATINGS FOR YOUR STUDENT.

Producing an LCP is, at the most, the work of a few minutes, (as in fact is the updating of ratings).

So, once you, the tutor, have decided on any new skills or behaviour ratings for your student, you will select the appropriate choice by pressing the correct RED key at the top of the BBC Computer keyboard. These keys are marked f0 to f9 and are unmistakeable.

Thus, to enter new Skills rating(s) for your student you would press the f1 key; to enter new Behaviours ratings, you would press the f2 key. Use of these is explained below:

#### ENTERING NEW LITERACY SKILLS RATINGS (Main Tutor Menu f1 key)

On pressing the f1 key to enter new Skills rating(s) for your student, you will, after a short time, see a new display on the VDU screen, as shown on the next page in Fig. t2:

LITERACY SKILLS INFO.

Do you want to:

- f1 - Have more info on literacy skills ?
- f2 - Update the skill ratings of a student ?

SELECT USING RED KEYS ONLY

Fig. t2

Two choices are offered here: pressing f1 at this stage will take you into a simple information sequence explaining the concept and nature of Literacy Skills. This sequence is one of three USER HELP sequences. These are discussed later. Suffice it to say at this stage that they have no effect on the working of the MALCM system and are included purely as an aide-memoire for users.

Pressing f2 at this stage takes you, the tutor, into the sequence for updating your ratings for your student's performance on any one or combination of the 16 Literacy Skills outlined in the Curriculum Model for the MALCM system. The screen will alter and will display the request shown in fig. t3 below:

LITERACY SKILLS - MALCM UPDATE SEQUENCE

Please enter the ID number of the student.

If this is not known, please enter the name of the student as it appears on the last LCP.

Then press RETURN

Fig. t3

When you first come to use MALCM, your supervisor will give you the identity (ID) number of your student for the system. All students have a unique ID number to avoid any possible confusion. When you see the display shown in Fig. t3 therefore, you simply have to type in the ID number of your student, to tell the MALCM system which person it is dealing with. To do so you simply use the top row of BLACK keys on the computer keyboard which have number on them. Thus, if your student's ID number is, say, 24, you would simply press the 2 key then the 4 key. As you type the

number will appear on the VDU screen - if you find you have made a mistake, you can rub out anything you have typed by pressing the DELETE key on the Computer keyboard. When you are satisfied that you have entered the right number, you press the key marked RETURN.

(NB: The RETURN key is a very common one on computer keyboards. Pressing it is a way of telling the computer that you have finished entering whatever information it requires and that you are now RETURNING control of the situation to the computer.)

You will see that there is provision for Tutors who have mislaid or forgotten their student's ID number to enter his/her name instead. This can be done by using the computer keyboard as a typewriter and typing in the name using the BLACK letter keys. Mistakes can still be erased by using the DELETE key. Generally, however, time and energy will be saved by remembering your student's ID number.

Once you have entered the ID number (or name) and pressed RETURN, the computer will, after a few seconds, display the layout of Literacy Skills shown in Fig. t4.

Select Skill with Space Bar & RETURN

- 1 - Sound input disc. skills
- 2 - Vis. input disc. skills
- 3 - Motor control abilities
- 4 - Single letter recognition
- 5 - Letter group recognition
- 6 - Sub-array recognition
- 7 - Array recognition
- 8 - Sub-array Phon. Translation
- 9 - Array Phon. Translation
- 10 - Array articulation
- 11 - Sub-word Phon. Translation
- 12 - Word Phon. Translation
- 13 - Spelling pattern checking
- 14 - Word articulation
- 15 - Lexical Access/Retrieval
- 16 - Use of context evidence

Press f1 to put these ratings on file.

Fig. t4

The Literacy Skills are shown in different colour groups in this display, according to the Process Level into which they are classified. Opposite Skill 1, a flashing green arrow will be seen.



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To select the Skill to which you wish to assign a new or updated rating, you simply need to press the long SPACE BAR at the bottom of the computer keyboard. Each time you press it, the flashing arrow will move down the screen to the next Skill, and will display the colour of the Process level group it is currently pointing to. Once the arrow has reached Skill 16, the next press of the SPACE BAR will return it to a position opposite Skill 1 and so on.

Once the flashing arrow is opposite the Skill you wish to rate, you should press the RETURN key. The Screen display will change once more to that shown in Fig. t5.

Skill selected is

1 - Sound input skills

Please enter new rating for student as 1 to 4

NB 1 - Beginning only

2 - Starting to make progress

3 - Quite good

4 - Perfectly competent

Enter rating and press RETURN

### Fig. t5

Fig. t5 shows the display as if Skill 1 had been selected for a rating. In fact the second line of this display will show whichever skill has been selected. You should now enter the new updated rating for this skill by pressing the appropriate number ON THE BLACK KEYS of the computer keyboard. Mistakes can be rubbed out by using the DELETE key. Once you are satisfied the correct rating has been typed, then press RETURN.

The screen will display as in Fig. t4 again, except that you will notice that your rating for the skill just selected is now displayed in white opposite the name of the skill. You may now continue to select and rate any skills you wish, for as long as you wish. It is quite possible to re-select a skill already rated and change the rating. The new rating will, of course appear alongside the name of the Skill in the t4 display.

Once you are satisfied that new or updated ratings are as you wish you can have them stored permanently in the MALCM system by pressing the RED f1 key. NB: PRESSING THE RED f1 KEY WILL MAKE A PERMANENT RECORD OF YOUR NEW RATINGS IN THE SYSTEM. BE SURE THAT YOUR RATINGS ARE CORRECT BEFORE

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PRESSING IT. (However, if you later wish to change them, you can do so by simply going through this sequence again, as many times as you wish.)

After the RED f1 key has been pressed and the new Literacy Skills ratings stored in the system, the computer will, after a few seconds, display the message:

Student skills ratings now updated

Press any key to return to main menu.

If you now press any key on the computer keyboard, you will be returned to a display of the Main Tutors Menu, as shown in Fig. t1:

### ENTERING NEW LITERACY BEHAVIOURS RATINGS (Tutor Menu f2 key)

As pointed out earlier it is the responsibility of the Tutor to update the Literacy Behaviour ratings for students, as well as those for Literacy Skills. Behaviour ratings are updated by selecting the f2 key in the main tutor menu. The process is much the same as that used in updating Literacy Skills.

On selecting key f2 in the Tutor's main menu, the screen display will alter to that shown in fig.t6 below:

### MALCM SYSTEM - TUTORS ACCESS LITERACY BEHAVIOURS CHECKLIST

Do you want to:

- f1 - Have more information on Literacy Behaviours ?
- f2 - Update your student's ratings for literacy behaviours ?
- f3 - Neither. Escape to Tutor's Menu ?

Select using red keys only

### Fig t6

Selecting key f1 here gives access to another USER HELP sequence, similar to that provided for Literacy Skills. It reminds the user of the basic concepts and terminology involved in assessing the student's Literacy Behaviour abilities. It is purely optional and is provided as an aide-memoire. Selecting it has no effect on the behaviour ratings given to a student.

Selecting key f2 at this stage take the user into the sequence which permits both updating of behaviour ratings for the student and also for the addition of new V/P contexts to the student's Literacy Curriculum model. This sequence is described in detail below.

Selecting key f3 at this stage permits the user to avoid any further work on Literacy Behaviours. It is provided in case a user has made a wrong selection at the Tutor's Main Menu stage. Pressing it will simply return the user to the Tutor's Main Menu.

#### ENTERING NEW RATINGS FOR LITERACY BEHAVIOURS

Upon pressing key f2 the screen display will again change as shown in Fig. t7:

#### LITERACY BEHAVIOURS - TUTORS UPDATE

Please enter the ID number of the student. If this is not known, please enter the name of the student as it appears on the last LCP. Then press RETURN

#### Fig. t7

At this stage you should enter the ID number of your student as requested. As with this request in the Literacy Skills update sequence, you do this simply by making up the number using the top row of black keys on the keyboard. Thus, the number 16 would be made up using a 1 followed by a 6. After the number is correctly shown on the screen, press the RETURN key. If, by some misfortune, you do not have the ID number of your student available, you can instead type in the name of the student. Be careful however that it is precisely as shown on your last LCP. Generally speaking it is better and simpler to remember your student's ID number.

Once the computer has noted your student's ID it will present you with yet another Menu display, shown in Fig. t8 below:

LITERACY BEHAVIOURS - TUTOR'S UPDATE

Do you want to:

Add new Voluntary/Personal  
Contexts for your student ?

f1 - YES

f2 - NO

Please select option using the RED KEYS only

**Fig. t8**

This menu offers you the option of adding to the list of Voluntary/Personal Social contexts held for your student. If you wish to do this, then you should indicate YES by pressing the red f1 key. Otherwise you will, of course, proceed by pressing the red f2 key. Doing this will take you into the sequence for the actual updating of Literacy Behaviour ratings. This sequence is described below, following an explanation of the method of adding new V/P contexts to the student's record.

**ADDING NEW VOLUNTARY/PERSONAL CONTEXTS**

If you select the option to add new V/P contexts to your student's record the screen will change to the display shown in Fig. t9 below:

**VOLUNTARY/PERSONAL CONTEXTS UPDATE**

As yet your student has no  
Voluntary/Personal contexts  
added to his file

Press any key to go on

**Fig. t9**

(Note that if you have already ascribed some V/P contexts for your student, then the above display will be slightly different. It will list those V/P contexts already ascribed, for your convenience.)

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As indicated, you would press any key on the computer keyboard to continue and the display would change to that indicated in Fig. t10 below:

### VOLUNTARY/PERSONAL CONTEXTS UPDATE

You can add up to a limit of 20  
V/P contexts for your student.

This means you have 20 left.  
Note that you must restrict the title  
of new V/P contexts to 30 characters  
including spaces.

```
*****  
*                                           *  
* ?                                           *  
*                                           *  
*****
```

Fig. t10

(Note that the figure represented by 20 in this display will vary according to the number of V/P contexts already filed for the student.)

You can now add as many new V/P context titles as you wish, up to the limit of 20 altogether. To enter a new V/P context title, you simply type it in using the computer keyboard. It will appear in glowing purple letters in the oblong, following the question mark. When you are satisfied that the title is correct, (you can edit using the DELETE key), then press RETURN. When you have no more V/P context titles to enter, then type END and press RETURN. The screen will then display your complete list of V/P context titles. You will be invited to press any key to continue. Doing so will take you into the sequence for updating Literacy Behaviour ratings, described below.

### ENTERING NEW RATINGS FOR LITERACY BEHAVIOURS

The first display presented to you on entering the sequence for updating ratings for Literacy Behaviours will that shown in Fig. t11 below:

## LITERACY BEHAVIOURS-TUTORS UPDATE

Do you want to:

Give new literacy behaviour ratings for your student ?

f1 - YES

f2 - NO

Please select option using RED KEYS only

### Fig. t11

Selecting f1 obviously continues with the sequence, whereas selection of f2 will return the user to the Tutors Main Menu. This option is included for those users who have wished to add new V/P contexts but do not wish to update ratings for behaviours.

Selection of f1 will alter the display to an information page which is included to remind users of the 1-4 scale of rating. It also includes information on the method of entering ratings for Literacy Behaviours. This method is described immediately below - the information page is therefore not reproduced here. It is intended as USER HELP device to back up information learned in training sessions and in this manual.

The number of possible ratings that can be given in the MALCM system for Literacy Behaviours is obviously much greater than can be assigned to Literacy Skills. While there are only 16 of the latter recognised, the number of possible Behaviour categories is the number of Expected Reactions multiplied by the number of Social Contexts (Common + V/P) in which they can occur, in other words, 6x32 or 192. Rather than attempting to list all these on the small VDU screen, (an impossible task !), the MALCM system asks the tutor/user to select the category of Literacy Behaviour by identifying its Expected Reaction category and its Social Context (Common or V/P).

To make this easier for the user, the screen display shown in Fig. t12 is used:

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```
*****
*
*   Personal/Individual   *
*   Relationships   (1)   *
*
*
*
*****
```

SOCIAL CONTEXTS                      f1

Select items using f1/f2 keys.  
Press RETURN to give new rating.  
Press f3 when finished

```
*****
*       *
*       *
*   0   *
*       *
*****
```

```
*****
*
*   Comprehend simple     *
*   Instructions   (1)    *
*
*
*
*****
```

Rating

EXPECTED REACTIONS                      f2

Fig. t12

Once the display shown in Fig.t12 is on the screen, the tutor/user can select the two defining categories of the Literacy Behaviour he is updating by simply pressing either the f1 or f2 keys. Pressing f1 will change the Social Context displayed in the top rectangle. Each time the f1 key is pressed the Context displayed will change, from 1 to 2, from 2 to 3 and so on. If any V/P contexts are held for the student in question, they will be displayed, in purple script, immediately following Common Social Context no.12 (The Law).

Similarly, Expected Reactions displayed in the bottom rectangle can be changed by pressing the f2 key. Thus pressing it once will change from E.R. number 1 to E.R. number two and so forth. Once the end of a list of Contexts or Reactions has been reached, a further key press will return the display in either rectangle to the first item in the list.

Once the tutor has decided on the Literacy Behaviour to be updated therefore, he/she will use the

f1/f2 keys until the desired Social Context and Expected Reaction are correctly displayed. The rating for the Literacy Behaviour is then updated by pressing the RETURN key, at which a display similar to that used in the Literacy Skills update sequence will be shown (see Fig. t13)

#### LITERACY BEHAVIOURS RATINGS UPDATE

Behaviour selected is the ability to:

Comprehend Simple Instructions (1)

In the context of: Personal/Individual Relationships  
(1)

Please enter a rating 1-4 on the scale

- 1 - Beginning only
- 2 - Barely competent
- 3 - Quite Good
- 4 - Perfectly Competent

Enter rating and press RETURN ?

#### Fig. t13

As with the Literacy Skills updating sequence, entering the rating, (which will appear on the screen immediately after the question mark), is simply a matter of typing the appropriate number on the top row of black keys on the computer keyboard, followed by a press of the RETURN key. The screen display will immediately revert to that shown in Fig. t12, with the difference that the newly assigned rating will be displayed in the square labelled 'Rating' on the right hand side of the screen. The Tutor/user can change as many ratings as he/she wishes. Any errors can be rectified simply assigning a new rating. When all is satisfactory, the newly assigned ratings can be recorded on the student's file by pressing the f3 key. The computer will take a few seconds to do this and will then offer the user the option shown in Fig. t14:



Do you want to:

- f1 - Give new ratings for Skills ?
- f2 - Print out a Literacy Curriculum Profile ?

Please select using RED KEYS only

Fig. t14

This last display in the Literacy Behaviours Updating Sequence simply offers the user a chance to make further changes to Literacy Skills ratings or to go straight on to producing a Literacy Curriculum Profile (LCP) for the student. If f1 is selected then the Skill Updating sequence already described will be entered.

If f2 is selected however, the computer will go on to produce an LCP for the student in question, without further need for intervention from the Tutor/User. The LCP and its production is described in detail in the following section.

#### 4 - PRODUCING A LITERACY CURRICULUM PROFILE FOR THE STUDENT

As indicated earlier on page T3, producing an LCP is one of the 6 responsibilities that a tutor has at each session, using the MALCM system. It is not in fact a particularly burdensome responsibility, since the computer does all the work - all that is required of the tutor/user is a simple single key press to initiate the printing out process, together with the collection, interpretation and storage of the printed LCP at the end of the short (3 minutes) printing out sequence.

The LCP is a printed document, produced by the printer linked to the computer. It does two things. Firstly it summarises all the ratings for Literacy Skills and Behaviours currently held for a particular student in the MALCM system. Secondly it offers advice on the revision topics and learning objectives for that particular student, both in Literacy Behaviours and Skills.

The main purpose in producing the LCP is to give Tutors and Students a running, permanent record of their progress in Literacy work to act as a guide for planning of future sessions. It is hoped that this structured, methodical record of work done and suggestions for future work will be of value to both tutors and students in providing an overall picture of progress and direction. Its suggestions

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for revision and learning objectives are not mandatory; tutors and students may choose to ignore them and concentrate on their own ideas.

### PRODUCING THE LCP

It is possible to make the MALCM system produce an LCP at two different points:

- 1 - At the end of the Literacy Behaviours Update Sequence
- 2 - Directly from the Main Tutors Menu

If it is produced from the Literacy Behaviours Update sequence, then a simple keypress as shown in Fig. t14 will initiate the printing.

If it is produced from the Main Tutors Menu, then pressing f3, as shown in Fig. t1 will start the sequence: in this case however, the computer will first ask the user to type in the Student's ID number. This is done as described earlier for the two updating sequences. Once the ID number has been typed in, the RETURN key should be pressed. This will initiate the printing process.

The printer will eventually (after about 2-3 minutes activity) produce two sheets of printed information. These should be removed from the printer by tearing along the perforations of the paper. If desired, the strips bearing the sprocket holes along the side of the paper can be removed by tearing along the vertical perforations.

Following the printing process, the computer will return to the Main Tutor Menu, ready for other users. Generally speaking, producing the LCP will be the last use of the MALCM system for a tutor in a particular session. The LCP itself is described below.

### READING AND INTERPRETING THE LCP

Figs. t15 and t16 give examples of the three printed sheets which make up the LCP.

Fig. t15 represents the first sheet. At the top is a certain amount of fairly obvious administrative and biographical information. Following this is the Literacy Skills Ratings Check. Here, the sixteen Literacy Skills and the ratings assigned for the particular student are shown grouped into the process levels to which they belong. (For an explanation of these, see the introduction to this manual.)

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Below this information, at the foot of the first sheet are the system's suggestions for a revision topic and for a skills learning objective.

On the second sheet is the Literacy Behaviours Check. Here, ratings for Literacy behaviours are shown on a matrix or grid, with Social Contexts (including V/P contexts) down the lefthand side and Expected Reactions across the top. At the bottom of the Matrix, suggestions for revision topics and learning objectives are given. In addition, the system indicates the lowest, unrated Expected Reaction level for that particular student.

Three points need to be made here about the system's suggestions for revision topics and learning objectives.

Firstly, the suggestions are just that. You are free to follow the advice or ignore it. It should be pointed out, however, that the suggestions are made on a logical basis and that the system bases them partly on the length of time that has passed since a rating was first assigned. You may find, therefore, that MALCM can be fairly persistent about these.

Secondly, you should be aware that the system assumes that a rating of 4 indicates a Literacy Skill or Behaviour which is sufficiently well mastered to need no further significant revision. No Skill or Behaviour rated as 4 will therefore be offered as a revision topic. There will also be times when the system offers either no revision topics (see above) or no learning objectives. This will happen, for instance, when ratings have been given for all 16 Literacy Skills

Thirdly, you should bear in mind that if a Skill or Behaviour is proffered as a learning objective, this may not strictly imply that the student needs to learn it outright. More accurately it might be described as a learning or assessment objective, since it will be a Skill or Behaviour to which no rating has, as yet, been given. The system will have decided that it is the next best Skill or Behaviour in which to investigate and rate your student's abilities. In setting out a learning objective therefore, the MALCM system is indicating the next 'unexplored territory' in your map of the student's Literacy Abilities which needs to be investigated, on the basis of your knowledge of the student to date.

### 5 & 6 - REPORTING DIFFICULTIES/FINISHING ON TUTORS MAIN MENU

The final two responsibilities that a tutor has during a MALCM session are described below:

### FINISHING WITH THE MAIN TUTORS MENU

It is important for the tutor/user to ensure that when he/she is finished with the MALCM system at a session, the computer VDU is displaying the Main Tutor Menu. This in its turn ensures that the system is ready for the next user.

Generally speaking the system is designed so that it will return automatically to this display - if for some reason you are finished with it and it is not showing the Main Tutor Menu, check the display that it IS showing. Usually you will find that you have not in fact actually finished - you may for instance have forgotten to produce the LCP for that session.

In cases of difficulty consult your group supervisor.

### REPORTING DIFFICULTIES

If you do run into difficulties with system, always consult your group supervisor in the first instance. Whatever you do, don't just walk away and ignore the problem. If your group supervisor is not available, try to find one of the full time ABE Unit staff at the college (office in room G29). If this is not possible, fill out one of the 'TROUBLE REPORT' slips kept next to the computer.

If you are unfortunate enough to find yourself with a computer that doesn't seem to be working - don't panic. Think:

If you hang on for a while are you likely to be able to get help from someone ?

Look again at the screen - have you missed something obvious ? If all else fails, switch off the computer system at the wall plugs in G31 and be sure to leave a 'TROUBLE REPORT' next to the machine.

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